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Original Communications

LUGOL'S SOLUTION OF IODINE IN THE TREATMENT OF EXOPHTHALMIC GOITRE.*

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In 1820 Coindet showed that iodine reduced the size of the thyroid gland in goitre cases. Following this report, and others, it was used rather frequently in the treatment of thyroid enlargement. It was found that it often accentuated the symptoms and the treatment fell into disrepute. Kocher among others advised against its use except in certain selected cases.

Baumann, in 1896, isolated iodothyrin from the extract of the thyroid gland. In 1914 Kendall isolated thyroxin and in 1915 proved it to be the active principle of the thyroid secretion.

Marine and his co-workers reported, in 1917, excellent results in the prevention of simple goitre in man by the administration of sodium iodide given in small doses. They were able to make one-third of the fully developed cases disappear.

The first attempt to treat exophthalmic goitre with iodine on a large scale was made by Plummer and his associates in 1922. In a recent article Plummer and Boothby report approximately 600 cases treated with iodine in the form of Lugol's solution. They found the optimum dose to be ten drops daily but as much as thirty drops daily was given in severe cases. Lugol's solution was used because it contained a large amount of loosely combined iodine. No case of undoubted exophthalmic goitre was made worse and the majority showed definite improvement. He estimates that two-thirds will be greatly benefited, one-fourth slightly improved, and one in twenty will show no improvement.

Starr and his co-workers report twenty-five cases treated with Lugol's solution in the Massachusett's General Hospital. Eighty per cent showed definite improvement and 48 per cent showed remissions as rapid as those following subtotal thyroidectomy. In their experience the metabolism rate tends to return to its original level in from one to two months —even though the iodine is continued. However, Mason, of the Royal Victoria Hospital in Montreal, is treating a series of cases with continued small doses, and reports hopeful results.

A. S. Jackson reports over thirty patients treated with iodine with an average reduction in the basal metabolic rate of 20 per cent. In his opinion ligation may be eliminated by its use in about 75 per cent of the cases.

In the University of Virginia Hospital we have treated fifteen patients clinically diagnosed as exophthalmic goitre. Fourteen showed marked improvement with a rapid drop in the metabolic rate and decrease in toxic symptoms. One patient showed an increase of 10 per cent in the metabolic rate although the clinical and pathological diagnosis was exophthalmic goitre. The average reduction in the metabolic rate in this series was 36 per cent, the greatest reduction 54 per cent, and the most rapid reduction 48 per cent in five days. The average basal pulse rate was reduced from 113 to 88 per minute. The average time during which iodine was administered was fourteen days.

We are unable to explain an average loss of two pounds in weight as all other toxic symptoms were definitely decreased.

The following cases are reported in some detail:

Case I. Mr. E. H., white, age 35 years, admitted to the University of Virginia Hospital, April 24, 1924. Complaint, nervousness and weakness. For the past five years patient noticed he was becoming increasingly nervous and had lost thirty pounds in weight. He was not aware of any exophthalmos or enlargement of the thyroid gland. His symptoms had become more marked within the past eighteen months. Physical examination showed a very nervous, somewhat emaciated white man. The positive findings were moderate exophthalmos with a characteristic stare, moderate symmetrical enlargement of the thyroid gland, heart slightly enlarged to the left with a very force-

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ful beat, rate 120. There was a very distinct fine tremor. The laboratory findings on April 26, 1924, were: Blood pressure 140 systolic, 70 diastolic, basal metabolic rate plus 71 per cent, weight 131 pounds. Diagnosis exophthalmic goitre. This patient was ordered absolute rest in bed, regular diet, and Lugol's solution, minims fifteen daily. On May 8, twelve days later, his pulse was 96 per minute, basal metabolic rate plus 17 per cent, and with a corresponding decrease in his nervous symptoms. On May 13th a partial thyroidectomy was done under nitrous oxide anesthesia. Convalescence uneventful. The pathological diagnosis was exophthalmic goitre.

Case II. Mrs. G. F., white, age 35 years. First examined June 11, 1923. Complaint nervousness and goitre. Nervousness was noted about one year before admission, and enlargement of the thyroid gland for three months.

Physical examination showed a well nourished woman. No definite exophthalmos but slight enlargement of the thyroid gland. Examination of heart and lungs was negative. There was a well marked fine tremor. June 11, 1923, laboratory findings were: Blood pressure 120 systolic, 80 diastolic, basal metabolic rate plus 43 per cent, weight 104¾ pounds, basal pulse rate 120 per minute. This patient was ordered absolute rest in bed for two weeks. On June 27th the metabolic rate was plus 43 per cent, basal pulse rate 140 per minute, weight 103½ pounds. She was then put on the previous routine and given Lugol's solution, minims fifteen, daily. July 26, 1923, twenty-nine days later, the metabolic rate was plus 15 per cent, basal pulse rate 85 per minute, weight 114 pounds. On August 4, 1923, partial thyroidectomy was done under nitrous oxide anesthesia. Uneventful convalescence. The pathological diagnosis was adenoma of the thyroid. This case shows the advantage of rest and the administration of Lugol's solution over rest alone.

Case III. Miss S. K., white, age 31 years. Admitted to the University of Virginia Hospital April 29, 1924. Complaint, nervousness, goitre, loss of weight, and shortness of breath. She was diagnosed exophthalmic goitre in 1918 and ran a course characteristic of that disease. There was a loss of thirty-five pounds in weight within three months before admission.

Physical examination shows an extremely nervous woman. Marked exophthalmos with the left eye more prominent than the right. There was considerable enlargement of the thyroid gland, the left lobe being larger than the right. Examination of the heart showed the apex beat in the sixth interspace, 10½ cm. from the mid-sternal line, irregular rhythm, no pulse deficit. A low systolic murmur was heard best at the apex and transmitted to the axilla. The lungs showed a few moist rales at both bases. Laboratory findings April 30, 1924; basal metabolic rate plus 72 per cent, basal pulse rate 108 per minute; blood pressure 160 systolic, 80 diastolic; weight 141 pounds. The patient was ordered absolute rest in bed, powdered digitalis leaves, grains 1½, and Lugol's solution, minims 15, daily. Ten days later, May 10, 1924, the metabolic rate was plus 25 per cent, basal pulse rate 60 per minute. Patient was kept on the same treatment until May 19, 1924, when the metabolic rate was plus 31 per cent, basal pulse rate 58 per minute, weight 122½ pounds. Four days later partial thyroidectomy was done under nitrous oxide anesthesia. The day following operation she developed auricular fibrillation, which was readily controlled by digitalis; the convalescence was otherwise uneventful. Pathological findings, exophthalmic goitre.

The lowest metabolic rate recorded in this case was plus 25 per cent and, although iodine was continued for nine days after this determination, the rate rose to plus 31 per cent.

It is of interest to compare the results obtained in this series of fifteen cases treated by rest and the administration of Lugol's with a similar number immediately preceding them, treated with rest, the administration of bromides, cold packs, etc.

Series No. 1. (Those not treated with iodine) showed on admission an average basal metabolic rate of plus 49 per cent. Three cases came in in crisis and are not included in the above average because it was impossible to make a metabolism determination. Four died under medical treatment, one with a metabolic rate of 106 per cent on admission, and the three that came in in crisis. Ligation of both superior thyroid arteries was done in seven cases with one death. Two did not return for thyroidectomy. There were seven thyroidectomies with no deaths. Three were primary and four followed ligation. One patient refused surgical treatment.

Series No. 2. (Those treated with iodine) showed on admission an average metabolic rate of plus 59 per cent. It was not thought neces-

sary to ligate any case and thirteen had primary thyroidectomies with no deaths. Two cases refused surgical treatment; one of these was treated with radium and the other with small doses of Lugol's solution.

The average post-operative temperature and pulse curves in the two series are very similar. The average pre-operative period in the cases treated with iodine was twenty-four days while in the series treated by rest and ligation it was forty-nine days.

In 1915 Plummer stated that the symptoms in adenoma with hyperthyroidism were due to an excessive production of normal thyroxin. He believed, however, the symptoms in exophthalmic goitre to be due chiefly to the production of an abnormal product, with probably some increase in the amount of thyroxin formed. In a report before the Association of American Physicians in 1923 Plummer suggested that the incompletely iodized thyroxin molecule produced in exophthalmic goitre was capable of entering into a catabolic reaction faster than the normal product, hence it gives a higher degree of toxicity. By increasing the supply of iodine the character of the molecule is changed with relief of the toxic symptoms.

At the Mayo Clinic definite cases of adenoma with hyperthyroidism are not treated with iodine. When exophthalmic goitre cannot be definitely eliminated iodine is used, but only under careful observation and frequent metabolism determinations.

Summary

In our series of fifteen cases treated with iodine, fourteen responded satisfactorily, one reported as showing parenchymatous hyperplasia did not respond.

The pathological report in eleven of the thirteen thyroidectomies was exophthalmic goitre, one was reported as adenoma, and one as degenerating colloid goitre.

Conclusions

1. Iodine is of great value as a pre-operative measure in the treatment of exophthalmic goitre.

2. Ligation is necessary in only a small percentage of cases when iodine is used.

3. It is very important to make a differential diagnosis between exophthalmic goitre and adenoma with hyperthyroidism.

4. In doubtful cases, iodine may be used as a diagnostic measure, but only under very careful observation, and frequent basal metabolism determinations.

5. The pre-operative period is distinctly shortened by the use of iodine.

6. Operation should be performed as soon as the metabolic rate reaches a base line.

7. We have not used iodine in any case over a sufficiently long period to determine its value as a curative agent.

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TREATMENT OF DIABETES MELLITUS—A REVIEW OF A YEAR'S WORK AT THE UNIVERSITY OF VIRGINIA HOSPITAL.*

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With the discovery of insulin and the development of a balanced diet, the treatment of diabetes mellitus has undergone many changes in the past few years. Lives which were previously hopelessly abandoned can now be saved. The ultimate results of any treatment can only be reckoned by a careful follow-up of cases. With this in view, an analysis of a year's work at the University of Virginia Hospital is attempted. It is realized that the conclusions drawn in this length of time cannot be final, but the work is to be continued.

Until recent years the under-nutrition method of Allen was generally used in the treatment of this disease. The essentials of this diet were a low carbohydrate, low protein, and low total caloric intake. In 1920, Newburgh and Marsh brought out their high fat, low carbohydrate,

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low protein diet. Patients have done well on both of these diets. The objection to the first mentioned can be made that it makes the patient an economical loss rather than an asset, and in the latter the diet is rather inflexible, the preponderance of fats making the diet monotonous. Following the work of Shaffer, who showed that two molecules of fatty acid can be burned up by one molecule of glucose, many formulae for computing the diabetic diet have been forthcoming, those of Woodyatt and Wilder being the most notable. A little over one year ago, we adopted the method of computing the diet as used in the Toronto General Hospital by Campbell[1], which has been used sucessfully for a period of over two years in that clinic. This is essentially a balanced diet, in that the total glucose will theoretically account for more than the fat derived from the diet. In general, the following methods have been used in the treatment of sixty-three cases admitted to this hospital from September 1, 1923, to October 1, 1924. In the uncomplicated case the patient has been weighed and measured, the surface area determined from a DuBois scale, and the total calories required to maintain the patient at rest for twenty-four hours, according to age, sex, and surface area read from an Aub-DuBois table. Protein is allowed in the amount of two-thirds of a gram per kilogram of body weight (except in children and the aged where the allowance must be higher), and the carbohydrates and fats calculated to make up the rest of the calories. In the majority of instances the mild diabetic will rapidly become sugar free on this diet, which is certainly an improvement over the old method of starvation. When once sugar free, the same diet is maintained for two to three days, to allow rest of the pancreas, and then increased at regular intervals, adding five grams of carbohydrates and twenty grams of fat, until approximately 600 calories above the basal requirement is reached. Just before the patient is discharged eight grams of protein are added. If the patient must do active work, more total calories are allowed. However should the patient not become sugar free, a fairly constant urinary excretion of glucose is reached, and enough insulin, based on one unit to every two grams glucose excreted, is given in three doses, twenty minutes before each meal. It has been shown that the average unit of insulin will metabolize one and one-half grams of glucose. Allowing two grams to every unit gives a margin of safety and prevents insulin shock. When the urine is sugar free the diet is increased as shown above, and the insulin increased as indicated. Thirty-four cases became sugar free on basal diet alone, twenty-five cases requiring insulin to render the urine sugar free.

Marked acidosis and coma require drastic and urgent treatment. Every patient showing acetone has a carbon dioxide combining power (Van Slyke) of the venous blood done on admission. We have found that this with the clinical picture gives us the most valuable information in guiding our treatment in a given case. In marked acidosis or coma, insulin is administered intravenously, in twenty to forty unit doses, at two hour intervals. Orange juice, or other easily assimilable form of carbohydrate is given, following the insulin, to the proportion of about one gram per unit of insulin. We feel, with other workers in this field, that in giving massive doses of insulin, it is well to have this carbohydrate available in the body. It is notable that most of these patients have been able to take fluids by mouth. We now have in the hospital a patient who came in with a carbon dioxide combining power of eleven volumes per cent, who could be aroused and made to take fluids readily. However, fluids and glucose can be administered by rectum, subcutaneously or intravenously, if necessary. In the latter case it is given very slowly at the rate of five c.c. of a ten per cent solution per minute. Soda is administered in doses not exceeding thirty grams in twenty-four hours. Bock *et al*[12] have shown that soda is of great value in the treatment of certain cases of coma, and there is at present no practical clinical method available for picking out these cases. This line of treatment is pursued until the combining power of the venous blood reached about fifty volumes per cent, which is a safe level. The insulin dosage is decreased as the acidosis decreases. No rule can be set regarding this, but the clinical picture along with the laboratory findings guide one's course.

When the combining power returns to normal, the patient is then placed on a basal diet, the insulin is continued, ten units before each meal, and diet increased as indicated above. The patients have frequent estimations of blood sugar, carbon dioxide combining power and urinalysis. No case of marked acidosis or

coma can be properly treated without these laboratory examinations. In emergencies insulin can be given as long as the urine shows large quantities of sugar. Twenty to forty units of insulin given in cases of coma or impending coma, by the family physician, will often save the patient's life and tide him over until a laboratory is available. If the acidosis is of long duration, coma cases will be lost in spite of insulin treatment. Tissue damage, which cannot be repaired, will have taken place, and, therefore, energetic and early treatment is advocated.

Infection, heretofore one of the most dreaded complications of diabetes, can now be combated successfully. Carbohydrates and proteins are given in ample quantities, and insulin is practically always required. The fats are kept at a low figure to lessen the acidosis. The insulin dosage here must be relatively greater, because in these cases it is less effective per unit dosage.

We realize that it is futile to treat diabetics unless they are taught the fundamentals of dietetics. The educational side of the treatment is therefore stressed. Either the patient or some member of his family is schooled until he is able to figure out the diet and make substitutions therein. Blackboard talks beginning with a simple explanation of the nature of their disease, the reason for treatment, nature of ordinary food-stuffs, and ending with diabetic arithmetic, are given to all patients who are able to read and write. Of course, at the outset they are bewildered by the apparent maze of problems presented to them, but in a very short time they are able to figure out their own diets, and make substitutions therein. In the diet kitchen they are shown how to weigh out the food, and the preparation of special diabetic food is demonstrated. This all takes time and is trying on the staff, but the results are well worth the effort. In a general hospital, such as ours, many of the patients belong to the unintelligent class, and the problem of treatment outside the hospital presents greater difficulties. Our experience, however, shows that these are not insurmountable. This type of patient is sent out with several diet lists with specific instructions about substitutions, using the ordinary household measures instead of a weighed diet. This, of course, is not practicable in severe cases requiring insulin, but fortunately our patients taking insulin have possessed enough intelligence to plan their diet, or have had someone in the family capable of planning it for them. The patients taking insulin are taught the symptoms of insulin shock, the method of combating it, and the administration of insulin. Each patient, able to read, is provided with a diabetic manual.

Having sketched the general outline of treatment, I will go on to an analysis of our cases and the results obtained. During the period mentioned sixty-three cases of diabetes mellitus were admitted to this hospital, the youngest case being five years of age and the eldest eighty-seven years of age. The age incidince is given in Table I.:

TABLE 1.

1-10	3	cases
11-20	4	cases
21-30	4	cases
31-40	8	cases
41-50	14	cases
51-60	8	cases
61-70	15	cases
71-80	6	cases
81-90	1	case

The majority of our cases were between the ages of thirty and seventy. Twenty-nine (46%) were males and thirty-four (54%) females. There were forty-nine white patients (78%) and fourteen colored patients (22%). In the total admissions to the medical service in this hospital for the years 1921-22 and 1922-23, the percentage of white to colored patients was eighty-three and seventeen per cent respectively. Therefore, comparatively speaking, in this series diabetes is as frequent in the colored race as in the white race.

In these sixty-three admissions there were five deaths in the hospital. One died from uremia, resulting from prostatic obstruction, two from septicemia following carbuncle (both cases had positive blood cultures and necropsy showed abscesses in various organs), one from apoplexy, and one from an operation for gall-bladder disease. None of these cases showed evidence, either clinical or laboratory, of coma before death. Two cases are known to have died since leaving the hospital, one a severe nephritic with a kidney functional test of ten per cent and blood urea of 160 mgs. per 100 c.c. of blood; this case died from a chronic nephritis. The other, a boy of fourteen years of age, died in coma two weeks after leaving the hospital. This boy showed a severe acidosis, but his mother insisted on taking him home, even though the danger of such a course was thoroughly explained to her. This gives a total

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mortality of eleven per cent. It is notable that not a case of coma was lost in the hospital during this period. In the previous year, before insulin was available, there were eight deaths in this hospital from diabetes in thirty-eight cases, of which number seven died in coma.

Seven cases (11%) gave a definite history of diabetes occurring in the immediate family. Forty-nine cases either came in with a diagnosis of diabetes or had characteristic symptoms over a long period before admission. In fourteen cases, sugar had been accidentally found shortly before admission, or it was discovered in the hospital as a result of routine urinalysis.

The duration is shown in Table II.:

TABLE 2.

1 year or less	39
2 years	4
3 years	5
4 years	1
5 years	3
6 years	1
7 years	1
8 years	2
9 years	1
12 years	1
16 years	1
20 years	2
Unknown	2

Twenty-seven cases were without complications, eleven were admitted in acidosis or coma, and twenty-five presented other complications.

Seven cases were discharged on insulin, and three additional cases have since required a small amount of insulin to keep them sugar free. In four cases the patients left the hospital showing sugar because they refused adequate treatment. Twenty-seven of the patients are still on a diet and are sugar and symptom free. Of the number discharged on insulin, which would be classed as severe cases, all are doing well, except the boy who died in coma, and one patient who remained sugar free until her only son was drowned. Since then she has taken no interest in living and at last advice was showing sugar. It is a well known fact that emotional disturbance temporarily diminishes carbohydrate tolerance. Eight patients left the hospital against advice, and are probably not adhering to their diet. Two are known to have broken diet, but say they are doing well. The remainder were sugar free when last heard from, or have been discharged recently from the hospital.

One case, who was admitted with sugar in the urine, acidosis, and a carbuncle, one and one-half years ago, on a recent admission showed a tolerance for 250 grams of carbohydrate before showing sugar.

In the severe cases no definite gain in tolerance has been noted, with one exception. A young man, twenty-six years of age, who has had diabetes for eight years, has been able to discontinue his insulin. Several patients receiving insulin have had to have it increased. One case increased from fifteen units to twenty-four units daily, and one from forty-four to forty-eight units daily. These results in general agree with those of other clinics.

Juvenile diabetes, almost without exception, presents the most severe type of the disease; therefore, it perhaps might be of interest to report the five cases occurring in this series in a little more detail:

CASE 1.—W. V., age, twelve years, male. Admitted November 9, 1923. Two weeks before admission he developed enuresis, and lost interest in his surroundings. His doctor found sugar in his urine. On admission he showed a heavy reduction of Fehling's with one drop of urine. Carbon dioxide combining power 27.87 vols. per cent. Blood sugar 200 mgs. per 100 c.c. of blood. He was discharged December 5th on carbohydrates 55 grams, proteins 35 grams, fats 160 grams without insulin. Readmitted January 28, 1924, with blood sugar 235 mgs. per 100 c.c. blood. Carbon dioxide combining power 44. He had broken his diet. Put on diet and insulin, but left the hospital shortly after admission against advice, and died two weeks later in coma.

CASE 2.—J. K., female, age, fourteen years. Admitted November 12, 1924. Three days before admission, developed headache and vomiting, and her family phyician found sugar in the urine. This patient showed a clinical picture of impending coma, drowsiness, deep respiration, fast pulse and acetone breath. Blood sugar 452 mgs. per 100 c.c. of blood, acetone and diacetic strongly positive. Carbon dioxide combining power was not done in this case.

She was discharged twenty-one days after admission on carbohydrates 60 grams, proteins 55 grams, fats 150 grams, without insulin. She has shown sugar once since that time during a cold, which readily disappeared on a small amount of insulin. On her first admission her weight was 69.5 pounds. She now

weighs 90 pounds and is living a normal life with the exception of her diet. A recent admission to determine tolerance showed that sugar appeared in the urine when 80 grams of carbohydrate were given.

Case 3.—J. D., male, age five, admitted December 20, 1923. Two weeks before admission, developed polyuria, increased appetite and thirst. One day before admission his family physician found sugar. He presented the clinical picture of severe acidosis. Blood sugar 323 mgs. per 100 c.c. of blood, carbon dioxide combining power 33 vols. per cent, five per cent sugar in the urine, weight 37 pounds. He was discharged thirty days after admission on carbohydrates 50 grams, proteins 22 grams, fats 80 grams. Since leaving here he has been to Boston where the proteins were increased. He was discharged without insulin, but now requires 10 units insulin a day and occasionally shows sugar. There has been no increase in weight in this case.

Case 4.—R. S., female, age, ten, admitted February 4, 1924. Sister died of diabetes. One week before admission, her parents noted that she was listless, had increased thirst and polyuria. Her family physician found sugar, and sent her in. She had the clinical picture of diabetic coma, blood sugar 448 mgs. per 100 c.c. of blood, carbon dioxide combining power 22.2 vols. per cent. She was discharged thirty-one days after admission on carbohydrates 55 grams, proteins 30 grams, fats 125 grams, without insulin. Weight 46 pounds.

Readmitted April 4, 1924, because of slight trace of sugar. She rapidly became sugar free in the hospital on same diet.

Readmitted August 11, 1924, showing sugar. She was sent out on same diet, and 12 units of insulin per day. Weight 55 pounds.

On October 3, 1924, she was sugar free. Weight 57 pounds.

Case 5.—Ruby P., female, age, twelve. Admitted March 29, 1924. She came in complaining of loss of weight and constipation over a period of one year. For past three weeks she has had polyuria and thirst. She presented the clinical picture of severe acidosis. Urine full of sugar, acetone and diacetic acid. Blood sugar 500 mgs. per 100 c.c. of blood. Carbon dioxide combining power 21.6 vols. per cent. Weight 60 pounds. This case presented a very difficult problem as it was hard to balance her diet and insulin, and keep her sugar free. She was discharged seventy days after admission on carbohydrates 55 grams, proteins 46 grams, fats 135 grams, weight 71 pounds, 44 units of insulin per day.

She has been readmitted several times since then because of complications and sugar in the urine. Her insulin is now 48 units per day, given in four doses. The last dose was split in two parts in order to control a morning glycosuria. The latter condition is found frequently in children. She was last seen on October 10th and did not show any sugar. Weight 82 pounds.

Two cases in patients, aged nineteen and twenty years respectively, who show sugar when the carbohydrates are raised above 250 grams in twenty-four hours, and who show a diabetic curve in the sugar tolerance test, are being followed with a good deal of interest. In a year's observation there has been no change in tolerance.

From our analysis and observation during the period mentioned the following conclusions are made:

1. That a balanced diet has proved to be a satisfactory method in the management of these cases.

2. Laboratory examinations are essential in the treatment of the severe cases, and a complete study should be made of every new case of diabetes.

3. Heredity played a suggestive part in a small number of these cases.

4. Diabetes in our series is as frequent in the colored as in the white race.

5. No definite increase in tolerance is noted in the cases receiving insulin. On the other hand, no marked decrease in tolerance is demonstrated.

6. Permanent insulin therapy was required in sixteen per cent of the cases reported.

7. Four cases of juvenile diabetes have been carried along successfully, one without insulin.

8. The ward type of patient has been educated in the fundamentals of the disease and dietetics with satisfactory results.

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Discussion.

Dr. Douglas VanderHoof, *Richmond*: The essential features in the treatment of diabetes have been admirably presented by Dr. Mulholland. It might be well, however, to emphasize the great responsibility of the family physician who is suddenly called to a patient on the verge of diabetic coma. Only

prompt, energetic and intelligent treatment can prevent a catastrophe. This fact was forcibly impressed on me very recently in the case of a woman who had previously been treated for a moderately severe diabetes and who left the hospital sugar-free on an adequate diet supplemented by ten units of insulin twice a day. In spite of explicit written directions, she subsequently stopped the insulin and then became careless in her diet. Finally, definite acidosis developed and, after some delay, she was transported from her home in another State, many miles by train, to the hospital in Richmond. On admission, she was in deep coma of some hours' duration and, in addition to her acidosis with high blood sugar, etc., her blood showed 66 mg. non-protein nitrogen per 100 c.c. After heroic treatment with insulin both intravenously and subcutaneously, together with nearly 5000 c.c. of fluid (intravenously, hypodermically, by rectum and by nasal tube), she came out of her coma in 24 hours and was conscious for some hours. To our dismay, however, she excreted only 210 c.c. of urine the first day, and then it was found that her non-protein nitrogen had risen to 97 mg. Two days later she died, not of diabetic coma but of uremia, with non-protein nitrogen 130 mg. and practically complete suppression of urine in spite of very large quantities of fluid introduced.

Dr. MacNider, of Chapel Hill, and others, have shown how very susceptible the kidneys are to increased amounts of acid in the blood. A diabetic patient threatened with acidosis should not be transported to a hospital but should have immediate treatment with insulin in sufficient doses. No elaborate laboratory investigations are possible or even necessary in such a situation. All the attending physician needs to do is to examine the urine every two hours for sugar and give insulin every two hours in just sufficient doses to render the urine sugar free. Only in this way can acidosis be warded off with its peculiar damaging effects on the kidneys. The danger of insulin shock is slight and, if it occurs, can be immediately controlled by small amounts of orange juice by mouth.

Dr. J. C. Flippin, *University*: There are many interesting and still unsettled questions relating to the treatment of diabetes mellitus in spite of the notable advances made in the past several years. I believe the greatest good the patients who come in the University Hospital derive is from attending Dr. Mulholland's "School of Diabetes." He meets these patients in small groups and gives them a brief outline of the nature of the disease and the principles upon which treatment is based. With patience and perseverance it is surprising to see how much these patients may be taught about the treatment of their trouble. Many of our patients are, of course, people of relatively little education and oftentimes of limited intelligence. With few exceptions each one can be taught how to select diet best suited to his individual case from the common articles of food. We fully realize the futility of bringing patients to the hospital, getting them sugar free and making even so careful a study of their metabolism and then sending them home without any knowledge of the proper way of caring for themselves. The problem is very similar to that of tuberculosis; the most valuable thing a patient often gets from residence at a tuberculous sanatorium is a knowledge of the disease and how best to care for himself in future. The problem with the diabetic is a very similar one

RADIUM IN THE TREATMENT OF CERTAIN NON-MALIGNANT GYNECOLOGICAL CONDITIONS.*

By W. LOWDNES PEPLE, M. D., Richmond, Va.

Every man worthy of the title of Physician, whether he practice medicine or surgery or one of its specialties, has but one goal before him—the restoration of his patient to health with the least possible damage to him, physically, economically, and I might add, psychically.

We treat an eye with meticulous care for months before we decide upon enucleation. We treat a hand that is infected or a foot that is crushed with time and care and pains and patience before we agree to amputation. But in the past we have not been as fair in deciding with the female reproductive organs. We have not exercised the same care and patience and thought in their preservation. These organs occupy a peculiar position in that it has often in the past been necessary to remove the uterus, for instance, where only moderate structural changes were present, and at times where the disorder seemed purely functional. There were many grave problems to be met, and the introduction of radium has solved a number of them for us. With it we can relieve symptoms and restore health, at the same time preserving organs and ofttimes retaining their functions as well.

Abnormal uterine bleeding has long been a serious problem in that it had to be frequently met with serious operations. Here I would like to stress the importance of the preservation of the female reproductive organs whenever possible, even though they are deprived of their function. Unquestionably, the mere knowledge of their loss has often had a serious, not to say disastrous, effect upon the patient. If, then, in addition to their physical preservation, there is the possibility of child-bearing, there are still many, many women left in the world who regard this as a blessing.

If we leave out post-puerperal states and malignancy and disease of the uterine adnexa, there are but four or five conditions that give rise to uterine bleeding, and it is to these that radium is especially applicable, namely:

1. The so-called myopathic bleeding in young women.
2. The fibroid tumor.
3. The fibroid uterus.
4. The relaxed subinvoluted uterus.

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5. Hypertrophic glandular endometritis.

Before going into the different types of cases, and the methods to be used, it may be well to lay down certain general principles to be followed and to have in view certain ideals as to results to be obtained. It is imperative in every case that an accurate, positive, and differential diagnosis be made before the treatment is undertaken. Radium is not a remedy for bleeding, but for many conditions which cause bleeding.

In young women especially the minimum dosage must be chosen to attain a cure, to relieve symptoms, and yet not to precipitate the menopause, or to leave the patient sterile.

Unless the surgeon is a physicist he should associate himself with one who is expert in the handling of these agencies to attain the best results. One must be positive in the case of a fibroid tumor that it is a fibroid and not a pregnant uterus or an ovarian cyst. We must exclude pus tubes, appendicitis and pelvic abscess, or the case may terminate disastrously, for radium either by lowering tissue resistance or by stimulating to activity the infectious organisms, will almost invariably fan even a smouldering infection into flame. One should not enter lightly upon the use of this agent in the young woman, for sterility and cessation of menstruation are likely to follow its use, even when cautiously administered. One should rather think of it as a next-to-a-last resort in the young woman—an alternative to hysterectomy.

To point a case: In profuse bleeding which we sometimes see in young girls, even when it has gone on for some time and there is anemia, and the uterus has become large and its mucosa swollen and engorged, its os patulous, irradiation should not be resorted to until curettage, hot astringent douches, rest in bed and tonic treatment have failed. For, while it is true that with a small dose of radium many cases continue after a while to menstruate normally, and a fair number have become pregnant and gone to term, still there are many others that have become or remained sterile and in whom the early permanent menopause has become established.

In the case of fibroid tumors, the different authorities are fairly agreed as to certain basic principles. In young women with nodular fibroids, myomectomy should always be done if there is no contra-indication, such as a profound anemia. If the woman is under thirty-five a small dose should be given even if a second treatment has to be given later. No tumor larger than a four months' pregnancy should be irradiated. Pedunculated and serous growths should be treated surgically, else they may undergo necrosis and some of the nodules actualy slough off into the abdomen. If the tumor is adherent, or if there is accompanying disease of the ovaries, surgery is indicated. In properly selected cases of fibroid tumors treated by irradiation we may confidently expect hemorrhage to stop and the growth to be greatly reduced or to disappear altogether.

The fibroid uterus, in contra-distinction to fibroid tumor of the uterus, is a condition that frequently confronts us. The woman fortunately is usually in the late thirties and oftener in the forties and nearing the menopause. The uterus is large, its wall hard and stiff, and the cavity is usually large with a scant thin mucosa. She is losing more blood at her periods than she can make up between times. The only alternative to hysterectomy is irradiation, and the results are most gratifying.

The Relaxed Subinvoluted Uterus: Here we have a large flabby uterus with a white cervix, with a patulous os and an oozing endometrium. These are oftener in the multipara in the forties, and there is usually a pronounced anemia when we first see them, and we hear the old story again about the "change of life" through which she believed herself to be passing. Here the only alternative to hysterectomy is irradiation, and in many of these women, weakened by anemia, with accompanying kidney and heart disease, hysterectomy is a hazardous venture. We welcome any agent that would get us over this difficulty or even stop the bleeding long enough to make an operation safe.

Hypertrophic Glandular Endometritis: This condition occurs oftener in the late thirties or early forties. It is characterized by marked increase in the glandular epithelium of the mucosa. The uterine glands are greatly increased both in number, depth and vascularity. Thorough curettage will at times relieve it, but when this fails radium will be found a safe, simple and useful way of avoiding hysterectomy.

When it comes to a choice of the two methods of treatment—surgery or radium—one should have many factors in mind which have a distinct bearing on the individual case. He should choose the surest, simplest and safest method

that will give permanent relief. He should think of the economic side of it in terms of time and expense.

I have been extremely fortunate in my work in having Dr. S. W. Budd, with whom I work daily, to help me in solving many of these problems.

In the use of radium I practically always give an anesthetic; it allows a more thorough examination of the uterine adnexa, and by using the curette we often get helpful, positive or negative information, and one is more certain that the radium is properly placed.

To illustrate the importance of thorough examination of a case before using radium, I did a preliminary curettement on a case with long, continued bleeding and marked anemia. The tissue removed from the fundus of the uterus proved to be adeno-carcinoma. A complete hysterectomy was done, and up to the present, though nearly two years have elapsed, there has been no local or metastatic return. Had I been content to use radium here for bleeding without ascertaining its cause I would have made a serious mistake, for carcinoma in the body of the uterus, if in an operable stage, is conceded by all to be a surgical condition.

To summarize then, there are many advantages to radium over surgery in properly selected cases:

First, there is no mortality.

Second, there is a minimum stay in the hospital.

Third, in cases with cardio-vascular disease or diabetes, it is a most grateful alternative.

Results: Although my results have been most gratifying, I prefer to report those of other workers who have a larger number of cases.

John O. Polak, in the *Medical Record*, March, 1922, reports 106 cases of fibroid tumors treated with radium. In 104 the bleeding stopped and never recurred after the first menstruation. In two, which were large, submucous tumors, bleeding recurred and hysterectomy had to be performed. He reports 260 women with fibroid uteri so treated, and states that there have been no failures to check bleeding, and in the majority the uterus has taken on a senile character after a few months.

The report of Leda J. Stacy, of Rochester, Minn., in the *American Journal of Roentgenology* for August, 1920, reviews 300 cases of menorrhagia treated with radium with results almost paralleling those of Polak. She reports three cases of full-term pregnancy in sixty-nine married women under thirty-five years of age who had radium treatment.

Practically all operators find that with small dosage the menstrual function can be retained in a large proportion of cases, even though there be a temporary suspension for several months or even a year.

Discussion

Dr. Hugh H. Trout, *Roanoke*: Dr. Peple's paper is too well presented not to merit a full discussion, though, like everything he has ever written, he has left but little for any one else to say.

One class of cases he failed to mention, and in this class we have found radium of great value. Those classes in which there has been done a supracervical hysterectomy we have found advantageous to place twenty-five or fifty mgm. of radium, in what remains of the cervical canal, to be withdrawn through the vagina in about twenty-four hours.

Smead, of Toledo, Ohio, has shown there is a very perceptible percentage of cases having cancer in the stump of the cervix, after supracervical hysterectomies done for fibroids of the body of the uterus. The placing of radium will certainly decrease, if not entirely eliminate, such a possibility, and the placing of radium in this locality also prevents, or cures cervicitis so frequently seen in such cases.

Dr. Chas. R. Robins, *Richmond*: It would be difficult for me to get up a discussion on the paper that Dr. Peple has just read, because I agree with him most heartily in all that he says. I think it is well, however, to remember that as far as radiation in the treatment of disease is concerned that it is not a cure for everything. Hemorrhage from the uterus is a symptom and it may be due to a number of causes. It is undoubtedly true that radiation does have a marked tendency to relieve hemorrhage from the uterus. It may be due to causes that are best treated by operation. When we come to consider the means of treatment, we have not only to ask, will the treatment produce certain results, but is it the best treatment that can be used? Experience has shown that radiation is becoming limited to certain specified conditions. In others, operation will be necessary to effect a cure. In order to secure the best results from radiation, a very careful painstaking diagnosis must be made and only those cases selected in which it is clearly indicated; otherwise, the results will be disappointing and the cures incomplete.

Dr. W. Lowndes Peple, *Richmond*, closing discussion: The point I want to bring out in this paper is that radium is not a remedy for hemorrhage, but a remedy for certain conditions which cause hemorrhage.

I wish to emphasize the necessity for careful study and painstaking diagnosis in all cases that are to be treated by radium. In properly selected cases it is a valuable aid to surgery.

THE FUNCTION OF THE PERINEUM AND ITS RESTORATION WHEN INJURED.*

By CHARLES R. ROBINS, M. D., Richmond, Va.
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Injuries to the perineum and their repair belong to the Genesis of Gynecology, and it would seem that anything added to what has already been written on the subject would be superfluous. Yet it is profitable once in a while to check up any subject to see if the working theories are correct and the result secured satisfactory. It is certain that many of the classical operations fail to restore the function of the perineum, and I think we can say that when a perineum has been definitely injured that the complete restoration of the function is often difficult. The object of this paper is to review briefly the more important points associated with the subject. I would not claim any great amount of originality in what I am about to present, because the views I hold and the procedures which I have found most useful are not only the result of a rather large personal experience and observation but also embrace points gained from other sources.

The perineum represents the point of convergence of various muscles and fasciae which have as their combined function the closure of the vaginal orifice, acting in this way as a sphincter. The ordinary round sphincter muscle would not be adequate for an orifice that is to permit the passage of a full grown foetus without necessary injury. The closure is effected in the first place by the course and shape of the vagina. By its connection with various fasciae it is held in such a position that when the patient is standing the anterior wall rests upon the posterior, or more correctly speaking, the posterior wall comes up under the anterior. The action of the muscles is such that they respond to any pressure from above, so that when the patient coughs or in anyway increases the pressure from above, the muscles contract to a corresponding degree to resist this pressure. If a patient with a normal perineum is examined in the standing position it will be seen how perfectly this closure is effected. The effect of this closure is to make the pelvis a closed cavity, and, while the figure of speech is not entirely accurate, it does convey the correct idea when it is likened to a vessel containing water, where pressure at any point in the vessel is equal in all directions. Under such conditions pressure from above is received on the outlet to the pelvis, while the contents of the pelvis are not particularly affected. When an injury of the perineum occurs that is of such a nature that it impairs the function of closing the vaginal orifice, the action is not altogether unlike that when the plug is removed from the bottom of the basin of water, the contents have a decided tendency to come out. It is not intended to convey the idea that this is the only physical factor concerned, because the pelvic contents have certain fascial and ligamentous attachments that have a very strong supporting tendency, but the fact remains that this support is inadequate if the perineum does not close the vagina, and, consequently, any operation dealing with the various forms of prolapse and displacement that does not restore the perineum will be doomed to failure.

The injuries of the perineum are, of course, most frequently those associated with labor. Penrose, many years ago, gave a classification of injuries of the perineum that is, I believe, entirely correct in principle and is one that I have continued to follow because it is the classification that expresses the true scientific injuries. He divided them into two general classes: First, the median laceration, and second, the laceration in the vaginal sulci. It will be observed that all of the muscles and the planes of fascia are in pairs which comes down from either side and unite in the middle. Therefore, median lacerations do not in any way injure the function of the perineum already referred to. The median laceration simply divides the point of insertion but does not injure the structure itself. Consequently, we do not have the various eversions and prolapses associated with this form of laceration. I have seen median lacerations which extended through to the anus and high in the vaginal septum which had no prolapse associated with them whatever. On the other hand, the lacerations in the vaginal sulci are lateral lacerations and tear through the structures themselves, so that the fasciae and muscles are injured and their functions more or less impaired, depending on the extent of the injury. It is in such cases that the vagina remains patulous and eversion and prolapse come on.

While we do not have prolapse with the median laceration, we do have a very definite and serious injury when the tear extends into

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the anus, dividing the sphincter ani muscle. In these cases we have loss of control over the bowel. This loss varies a great deal, most frequently manifesting itself only as far as gas is concerned or when the patient has a diarrhoea or has taken medicine, but when the injury is extensive the control of the bowel may be entirely lost, so that the patient may be unaware of a bowel movement until it has actually taken place. When we are dealing with this type of laceration, the principles involved in repair are comparatively simple; they consist of denudation of the cicatricial tissue with demonstration of the sphincter ani muscle and thorough exposure of the ends. Suture is not difficult because the fasciae and muscle have not been displaced and lie opposite each other, so that the perineum is easily reconstructed.

The chief point in the operation is the suture of the sphincter muscle so that control of the bowel may be re-established. The principal cause of failure in this type of operation lies in the danger of infection of the suture line from the rectum. In order to obviate this, I have found two expedients very useful. The first is to protect the suture line from the anus by dissection of the rectal tube on its anterior aspect, so that it may be drawn down, thus protecting the suture line instead of attempting to suture the rectal tube *in situ*. The other point is to secure an early fluid movement of the bowels. Enemata I have found for some reason to be very dangerous and very liable to cause infection: consequently, I never use them. On the second day following the operation the patient is given frequent small doses of a saline purgative, usually citrate of magnesia. This produces a fluid stool which does not distend the anus and, consequently, does not pull on the recently sutured sphincter, and these fluid movements are kept up until union is complete, usually about ten days. If a hard fecal mass is formed it will be very likely to do considerable damage and destroy the result of the operation.

The other type of operation, however, is a much more complicated affair. When the muscles and fasciae have been injured and retracted and become to a certain extent functionless, we have a number of changes that take place and increase progressively. We will not refer in this paper to cystocele and abnormal conditions of the anterior vaginal wall, although these cases require very complete restoration of the perineum to prevent recurrence. No perineorrhaphy, however, will cure a cystocele after it is once formed. When the function of the perineum has been impaired in the manner stated, certain very definite phenomena take place. The vagina, instead of being closed, remains patulous. The anus, which normally is held high in the anal cleft, drops backward and downward. The whole perineum presents a relaxed appearance and gives easily to pressure in any direction when the finger is introduced into the vagina. There is a tendency to eversion of the vagina which is markedly increased when the patient strains down, and often there is a marked protrusion of the posterior vaginal wall or rectocele. The rectum and vagina come in close contact throughout the entire area of the vagina. Often this relaxation interferes very materially with proper defecation. As time goes on, these changes in the perineum becomes more marked. At the same time that these changes are taking place in the lower genital tract, equally pronounced changes are taking place in the pelvis. On account of the incomplete or insufficient closure of the vagina, the pressure from above, instead of being received on the structures closing the vagina, is expended upon the pelvic contents, and we have a constantly increasing sagging of these organs, with the development of relaxed ligaments, passive congestion, displacement and prolapse. The early restoration of the perineum is always indicated as a prophylactic for these pelvic changes. We cannot expect it, however, to be curative after the changes have once become fully developed, and proper means must be adopted to overcome these changes. Unless, however, the function of the perineum has been restored, the condition will recur.

In order to understand what we should accomplish by operation on the perineum we should have a definite mental picture of what the normal conditions are. We have in the first place a perineum that is held up snugly under the symphysis. The perineum does not end at the hymen but extends some little distance beyond, so that the hymen normally is placed well within the vaginal orifice. Neither does the perineum form an apex at the site of the hymen but it represents a broad surface of approximately an inch. This is the thickness of the pelvic floor and the vagina for this distance represents an opening extending directly inward. After this distance is passed the vagina

curves backward. These points can be readily verified by examination. The point is that the restoration of the perineum must contemplate a broad surface and a few stitches applied from the skin surface cannot possibly effect restoration. In performing the operation, the first thing is to remember that the posterior wall of the vagina has become prolapsed and usually presents a rectocele with the lower portion of the vagina and rectum in contact throughout. Any method of denudation that does not overcome this cannot possibly succeed. In order, therefore, to get a picture of how to approximate the prolapsed posterior wall of the vagina, it should be pushed well up. Having done that we then begin to see how the perineum should look.

The Denudation.—I usually denude with the semi-circular incision around the muco-cutaneous margin of the posterior vagina. This is dissected with the knife until the free space underneath the skin is entered, when the separation is completed with blunt scissors. The separation is carried high up on the lateral walls of the vagina and extends backward for a distance of one inch or more. After this has been completed, the flap of mucous membrane of vagina is removed with scissors. In determining the amount of tissue to remove, we consider first the amount of tissue necessary to leave on either side, so that it will come together easily in the mid-line. Having determined how much flap to leave, the incision is made on either side with scissors on a line parellel to the course of the vagina and extending inward for approximately one inch or slightly more. These are connected with a transverse cut across the vagina and the tissue removed.

Obliteration of Rectocele.—It will often be found that the rectum and vagina lie in close contact. In order to prevent a recurrence of the rectocele, the vagina and rectum must be separated quite widely. The suturing is then done as follows: First, a continuous suture of iodized catgut is started on the apex of the vaginal denudation, as, otherwise, it would be difficult to put in the suture after the buried sutures have been placed. We then proceed to suture the deep structures. The first stitch is introduced at the point which corresponds to the internal aspect of the levator ani. I usually use chromic catgut for this purpose. It should be some material that is not too quickly absorbed. The stitch commences right under the mucous membrane of the vagina, catches up a section of the levator muscle and then takes a bite in the tissues lying immediately anterior to the rectum, and comes up again on the other side in the same manner. About three or four of these stitches are necessary. When they have been tied, it will be found that not only will we have constructed a perineum that approximates normal conditions, but it will be one that is controlled by muscular action. After the deep sutures have been tied, the vagina is united by the iodized catgut suture already mentioned. This process of suture is continued until the site of the hymen is reached, which makes a very good land mark. At this point a further denudation of the skin perineum is made by cutting away all scar tissue with a pair of scissors. It will usually be found in these cases that the transversus perinei muscles have retracted to some extent and by making this denudation somewhat wide they can again be approximated. This is done usually with two buried sutures of chromic catgut, and after the rounded perineum has been formed as it exists normally, the skin is sutured with the end of the iodized catgut suture. It will be found that after these procedures have been completed, instead of having a perineum that has been elongated by infolding tissue, we have a perineum that is short and held up snugly under the symphysis. It will also present a broad surface in the vagina that will close the vagina properly. It will also be controlled by muscular action and is usually devoid of scar tissue. In addition, the rectocele has disappeared. A finger introduced in the anus and another in the vagina will demonstrate that the vagina and rectum do not come in apposition except at the normal point which is approximately a little over an inch within the anus. I believe that this method very nearly restores the perineum to normal condition and I have found in follow-up cases that it is sometimes almost impossible to make out that the perineum has been injured at all.

ECTOPIC PREGNANCY: AN ANALYSIS OF NINETY-FIVE CASES.*

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From 1 to 2 per cent of all gynecological cases are ectopic pregnancies. Farrar, of the Woman's Hospital, New York City, gives an

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incidence of 1.5 per cent and Wynne, reporting a series of cases from the Johns Hopkins Hospital, gives an incidence of 1.3 per cent.

This paper is based on the data obtained from the records of ninety-five patients operated upon at the University of Virginia Hospital during a period of about fifteen years.

The clientele of a Southern hospital with charity wards differs markedly from one in the North. In our series of cases, fifty-four or 56.8 per cent of the patients were white and forty-one or 43.2 per cent were negroes. The report from Johns Hopkins Hospital shows only 33 1/3 per cent of their cases to have occurred in the colored race. This does not mean that the negro in the North is less subject to the condition than that of the South but most probably that the proportion between the white and negro patients is different.

Our records are not so arranged that the relative frequency with which extra-uterine pregnancy occurs in the white and negro patients can be ascertained. In Wynne's report the incidence in the negro was greater than in the white, the ratio being about six to four.

Our youngest patient was eighteen years of age and the oldest forty-four years of age. Fifty-six per cent of the cases occurred in patients from twenty-five to thirty-five years of age inclusive, and 96 per cent occurred between the ages of twenty-one to forty inclusive.

In the series of ninety-five cases there were two unmarried women, five widowed and two divorced. Two-thirds of the cases had not been pregnant more than twice; 17.2 per cent had had no pregnancies; 28.5 per cent had had one pregnancy, and 20.9 per cent had two pregnancies. One of the patients had been pregnant eleven times, the twelfth pregnancy being extra-uterine.

Symptoms had been present from four to eight weeks in 86 per cent of cases. Pain was present in all but one case. It varied widely in degree and character. In some instances it was sharp and lancinating, while in others it was of a dull character. A large percentage of patients described their pain as cramp-like, comparing it with labor pains. In 55 per cent of the cases there was a history of acute attacks with severe pain. In some cases the patient had several attacks of gradually increasing severity. The seat of the pain was usually either in the right or left lower quadrant of the abdomen or across the entire lower abdomen.

Very few of the patients gave a history of missing a menstrual period; a delay in the appearance of the menstrual flow was most often the rule. In some cases menstruation became more frequent. Seventy-three per cent of the cases gave a history of uterine hemorrhage. Bleeding would most frequently be noticed following an attack of pain.

Nausea and vomiting accompanied the attacks of pain in forty-one cases, and nausea alone occurred in fourteen cases. A history of dizziness and fainting was obtained in twenty-two cases. Complete loss of consciousness occurred in only a small number of these patients. Sixteen of the patients were in various degrees of shock upon admission to the hospital.

The temperature on admission was in the majority of cases not over 100° F. The average temperature for the cases with tubal ruptures and abortions and the unruptured cases was 99.6° F. The tubo-abdominal cases averaged slightly higher. The pulse rate in the cases of tubal rupture and tubal abortion averaged 93 to the minute; the unruptured cases averaged 86, and the cases of abdominal pregnancy had an average pulse rate of 104. In most cases the respiratory rate was slightly increased; the average rate was 22 to the minute. The highest temperature recorded was 103° F., the highest pulse rate was 140 to the minute and the highest respiratory rate was 36 to the minute. As a rule the cases in which there was an accompanying pelvic inflammatory disease gave the highest temperature, pulse and respiratory rates. The leucocytes in the cases of tubal rupture and tubal abortion averaged 11,000; in the unruptured cases 8,000, and in the cases of abdominal pregnancy 16,000. In the cases of tubal rupture and abortion the hemoglobin averaged 71 per cent, the abdominal pregnancies 36 per cent, and the cases of unruptured tubal pregnancies 77 per cent. The Wassermann reaction was only recorded twenty-three times and in just one case was it reported positive.

On examination the abdomen was found to be distended in thirty-seven patients. In eight of this number movable dullness could be made out in the flanks. In 50 per cent of the cases there was tenderness across the whole lower abdomen, and in others tenderness was present in either the right or left lower quadrant of the abdomen. Tenderness was, in the majority of cases, accompanied by rigidity. In

some cases an abdominal mass could be palpated, but this was not the rule.

Vaginal examination showed the cervix to be softer than normal in 90 per cent of cases, and in the majority some enlargement of the uterus was noted. A mass was palpable posterior to the cervix in the cul-de-sac in 38 per cent of cases; in 28 per cent in the right vaginal fornix; in 19 per cent in the left vaginal fornix, and in 4 per cent in both lateral fornices and the posterior cul-de-sac. In 11 per cent no masses were palpable. The masses were usually quite tender, fluctuant, and were described as feeling velvet-like.

Tubal abortions and tubal ruptures comprised 68 per cent of the series. These types are grouped together because in some of our earlier histories the pathological description was not full enough to distinguish between the two. Twenty-nine per cent showed the tube to be unruptured, and 3 per cent were of the abdominal type. The pathology was found on the right side in 60 per cent of cases and in 40 per cent on the left side.

An accompanying pelvic inflammatory disease was found in 55 per cent of the cases, ovarian cysts in 7 per cent, and myomata uteri in 3 per cent. Four per cent of the patients had a retrodisplaced uterus and 2 per cent had a previous operation at which time the uterus was suspended for this trouble. Two of the patients had had previous operations for ectopic pregnancy.

In ninety-one patients an abdominal operation was performed, while in the remaining four a pelvic puncture alone was done. An unilateral salpingectomy was done in sixty-three patients, and in twenty-seven there was a double salpingectomy. One ovary was removed in forty-seven cases, both ovaries removed in seven cases, and the uterus removed in six cases.

There were five deaths in our series—a percentage of 5.2. Of these five, two died of pulmonary embolism a number of days following operation; one died of a post-operative intestinal obstruction, one from hemorrhage and shock, and one of shock following an extensive operation in which the large bowel was torn.

Post-operative complications were not often met with. Femoral thrombosis occurred in two cases, pulmonary embolism in two cases (in one of these cases embolism followed a femoral thrombosis), intestinal obstruction in one case, pleurisy in one case, and post-operative insanity in one case.

Discussion

In only a small number of cases of extra-uterine pregnancy does the tragic text-book picture obtain. For diagnosis of this condition the history is more important than a physical examination. In the great majority of cases a diagnosis can be made if the history, physical examination and laboratory data are combined and correlated.

Pain is the most constant symptom and it is only in a few unruptured cases with slight bleeding into the decidua that it is not present. It is more often cramp-like than lancinating. A careful menstrual history is most important to arrive at a correct diagnosis. A few cases will give a history of having missed one or more periods, some will give a history of menorrhagia, some a delay of several days from the time the period is due and then a menorrhagia from its onset. Some of the patients menstruate two or more times a month. In some cases there is a continuous metrorrhagia. A history of the passage of clots or fleshy masses is very suggestive. Polak and Welton have shown that a decidual reaction may be found at several points in the tube in ectopic pregnancy, often far remote from the seat of implantation. Coincident with the separation or death of the ovum by hemorrhage into the decidua there is bleeding from the uterus and also from the several points of decidual reaction in the tube.

Nausea and vomiting are present in about half the cases due to the peritoneal irritation from the intra-abdominal hemorrhage.

Ectopic pregnancy has to be differentiated from pelvic inflammatory disease, torsion of ovarian cysts or Fallopian tubes, and at times appendicitis.

Pelvic inflammatory disease is a very frequent accompanying condition to extra-uterine pregnancy. In a large number of cases it is looked upon as a causative factor. Other pathological conditions are frequently present, such as cystic ovaries and myomata. Developmental defects, principally hypoplasias, are thought in some cases to be responsible for the condition. Previous abdominal operations, especially uterine suspensions, are frequently incriminated.

The treatment of these cases is, of course, operative. In those patients in which hemor-

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rhage has not been very severe and who show no shock operation can be done at the surgeon's leisure. Concerning the treatment of the cases seen in shock, the so-called tragic cases, there is some dispute among gynecologists as to whether immediate operation should be undertaken or time should be allowed for the patients to react from their shocked condition. There is no certainty that hemorrhage is going to cease and it has not been our custom to temporize with these cases.

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CONCENTRATED MILK FEEDING (ACID MILK) IN YOUNG INFANTS.*

By ST. GEO. T. GRINNAN, M. D. Richmond, Virginia.

The study of growth during the early period of infancy is of especial interest to all physicians. Many infants are not so fortunate as to have breast milk and some have breast milk but in insufficient quantity. The greatest trouble in infant feeding occurs during the first two years of life. It is to this class that our attention is especially directed, the premature being also considered.

The failure of diluted cow's milk to produce proper growth and development has directed the attention of the physician to a more careful study of cow's milk.

We know that protein is the essential element of growth. Protein is composed of a number of amino-acids, important among which are lysin, cystin and tryptophan. The lactalbumin of woman's milk contains important amino-acids in abundance. Cow's milk has a much smaller proportion of amino-acids than woman's milk, hence, the percentage of protein in woman's milk is not a guide to the percentage of protein necessary in cow's milk. A much larger percentage of protein must be used in cow's milk feeding if proper growth is to be maintained.

Vegetables are poor in amino-acids and proper growth cannot be maintained on vegetable protein. It is as amino-acids that nearly all nitrogen is absorbed. Infants have a remarkable faculty for retaining nitrogen.

*From the Department of Pediatrics, Medical College of Virginia, Richmond, Va.
Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

(NOTE.—*In all of the formulas given W. L. M. represents whole lactic acid milk. Fifty per cent K. represents fifty per cent Karo syrup. The numerals are ounces. All feedings are at four hour intervals. The acid milk used is either whole cultured acid milk or acidified with lactic acid.*)

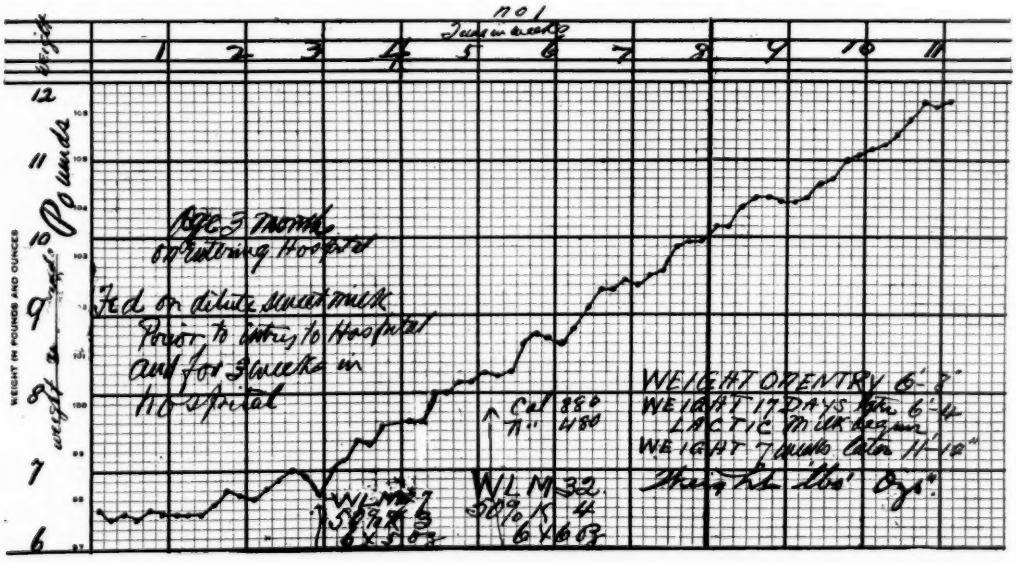

CHART No. I.

Infant, age 3 months, fed on dilute sweet milk with sugar and soda, prior to entering hospital, and for 3 weeks in the hospital. Changed to whole lactic acid milk with remarkable gain, almost doubling weight in two months.

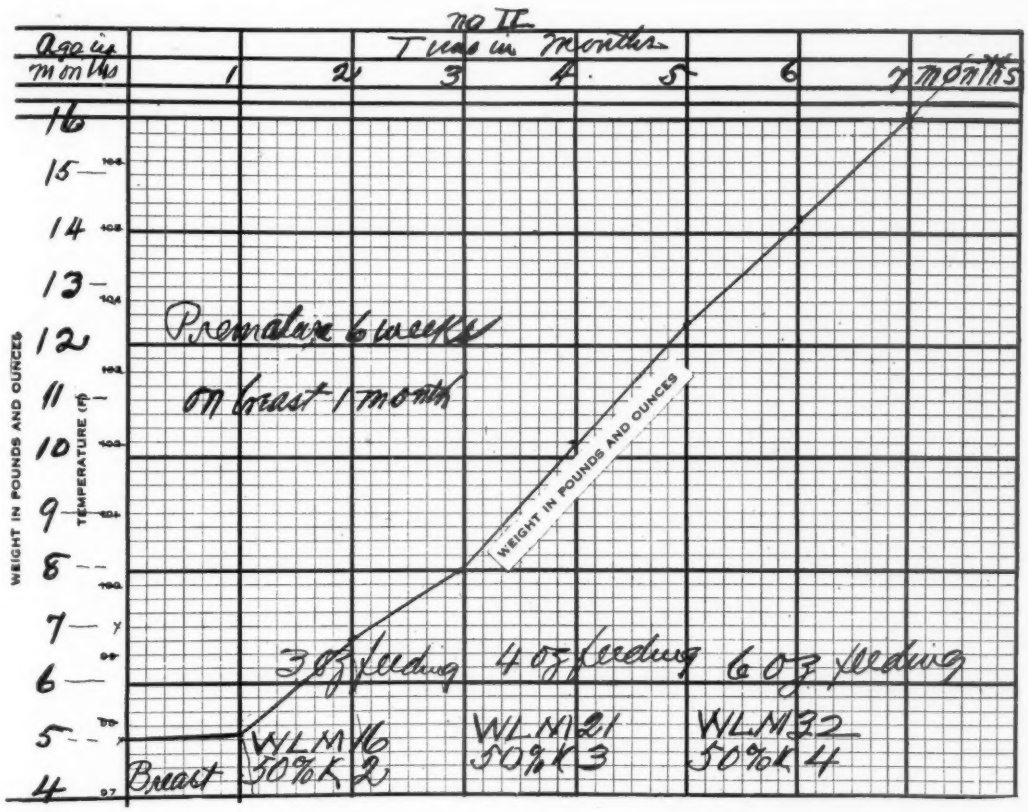

CHART No. II.

Premature infant weighing 5 lbs., fed one month on the breast; No gain. Changed to whole lactic acid milk with continuous gain.

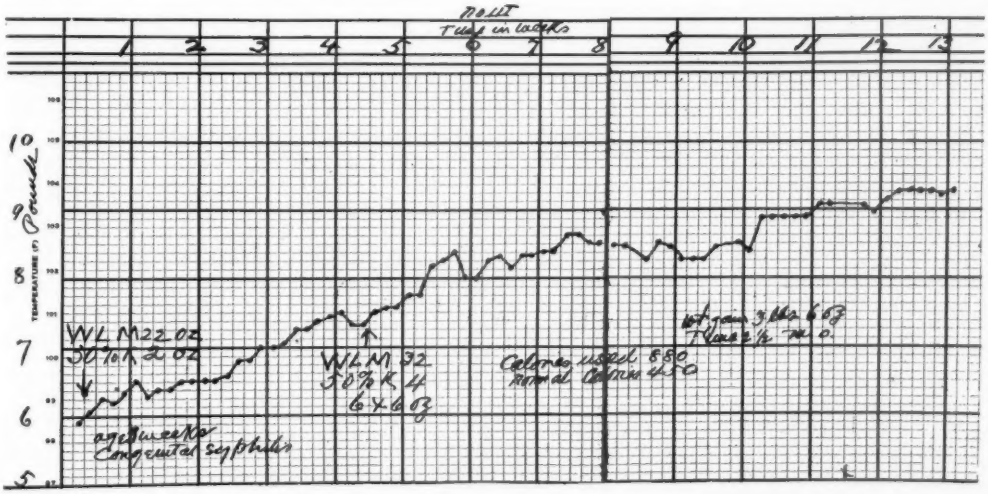

CHART No. III.

Congenital syphilis. Continuous gain. The calories are larger than the normal requirements. Concentrated whole lactic acid milk used.

Protein furnishes the colloid or swelling substance for growth.[1] Carbohydrates take no part in cell construction but cause protein retention and the retention of salts and water. It has been said that protein burns in the flame of carbohydrate. High carbohydrate feeding is necessary in cases that need more hydration and protein construction.

Remove or lower carbohydrates and we have decreased hydration, decreased protein retention. The hydration caused by carbohydrates is a loose hydration and this hydration may be quickly lost as in the case of high sugar and low protein. If we have a high protein and low carbohydrates, we have a more stable hydration.

It is not possible for us to consider a larger study of protein, but we can easily see that this important substance should not be reduced.

The "law of minimums" holds. One component deficient causes lack of growth. Normal infants gain twenty to thirty grammes daily. An infant is seventy-five to eighty per cent water as compared with sixty-five to seventy per cent for an adult. It is thus easier for an infant to take protein freely without hyperthermia. Increase protein without increasing water and we may expect a dynamic

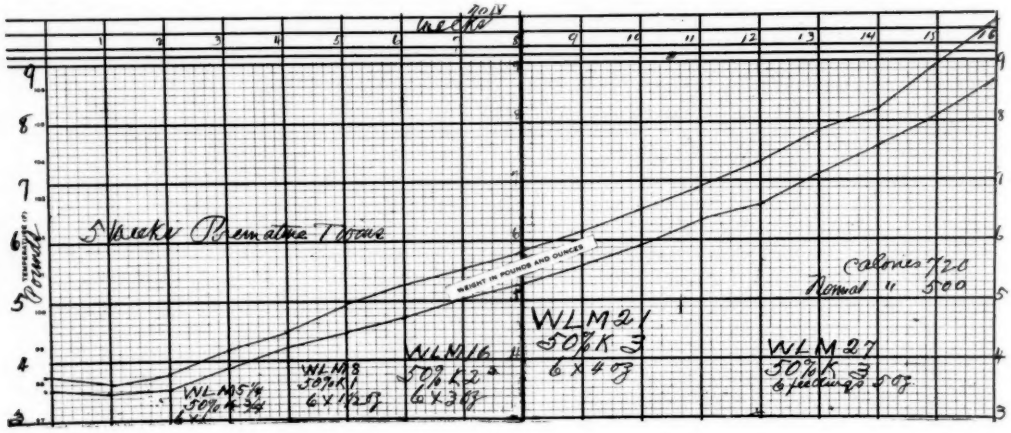

CHART No. IV.

Twins, premature 5 weeks, weighing less than 4 pounds. Fed on whole lactic acid milk with continuous gain.

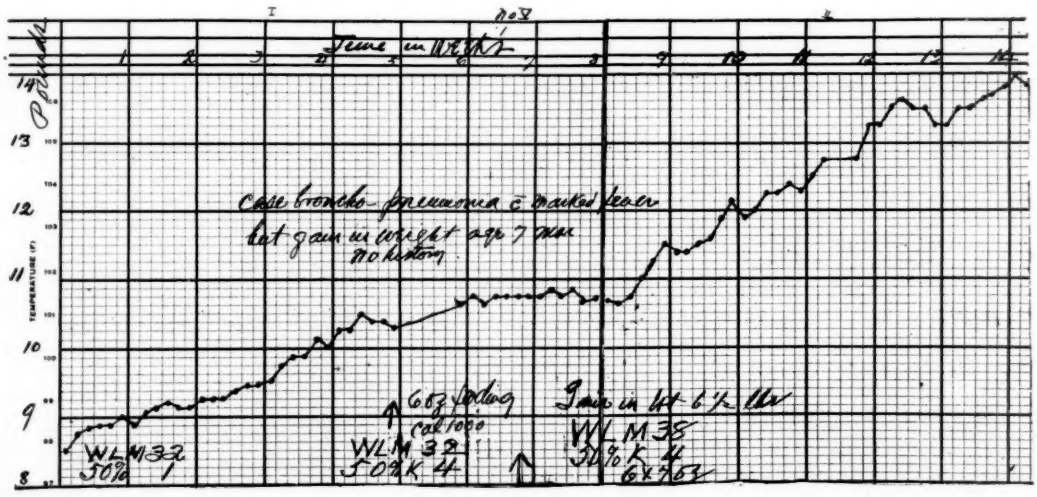

CHART No. V.

Case of broncho-pneunomia with high fever, age 7 months. Continuous gain in weight on whole lactic acid milk.

hyperthermia, but milk is eighty-seven per cent water and water prevents or reduces the temperature produced by high protein. For this reason protein should be reduced in fever. Alkali is necessary for growth. Colloid swelling progresses on a larger scale in the presence of an alkali.[2] Calcium is in solution in an acid medium: therefore, alkali and calcium are antagonistic. The stomach content is normally acid and the intestine normally alkaline. The retention of calcium to potassium acid or alkali which may be added, thus nullifying their effect.[3]

"It is free hydrogen ions which are responsible for the characteristic properties of all acids. Various foods have the property of binding large amounts of acid and converting the hydrogen into a non-ionized form, thus to all intents and purposes neutralizing the acid. The food of this class renders the hydrochloric acid secreted inactive. Cow's milk has three times as much buffer substance as woman's

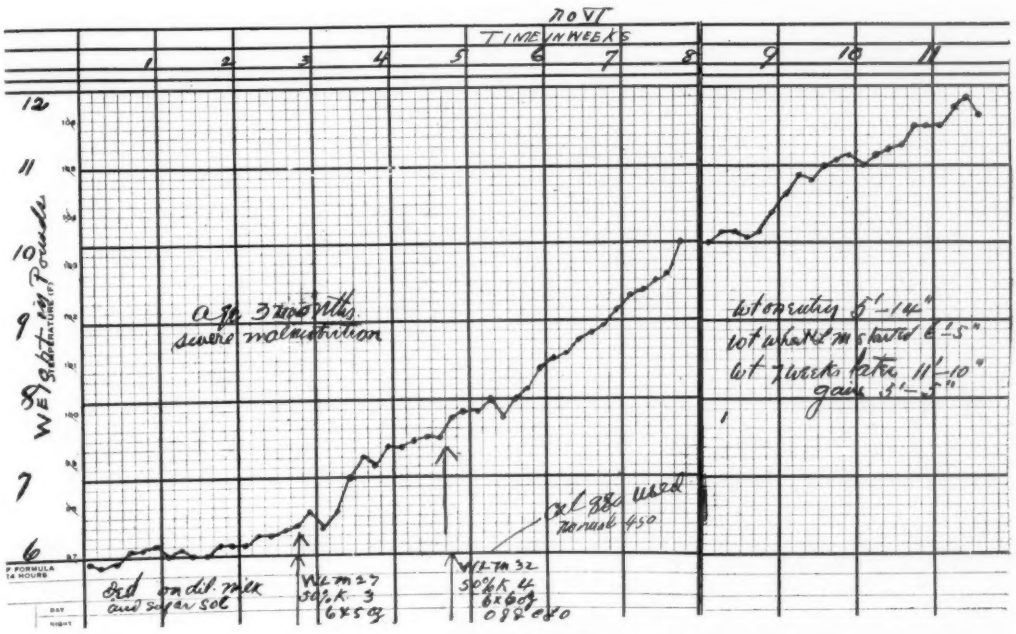

CHART No. VI.

Severe malnutrition, age 3 months. On entering hospital had been fed on diluted sweet milk with sugar and soda. This feeding continued nearly three weeks in the hospital. Note the rapid change when lactic milk was begun.

sodium is important and the normal balance must be maintained for health and growth.

The inorganic salts enter and leave the body quite unchanged and seem foreign to living process. Inorganic salts are of vital importance. Inorganic salts make possible electrolytes which maintain electric charges and produce chemical reactions that put life in proteins.

"There are chemical buffers which act chemically to preserve neutrality. A buffer is any substance (present in a solution) which because of its affinity for either acid or alkali tends to preserve the original H-ion concentration of the solution by combining with any milk. On breast milk, the Ph. has been found to be 3.75 normal infants. On cow's milk, feeding normal infants, the Ph. is 5, 3.[4] As the Ph. is expressed in the form of a reciprocal logarithm, Ph. 3 is much greater than Ph. 6. To an infant accustomed to cow's milk, more acid is gradually secreted to account for the larger buffer substance of cow's milk. (As devised by Sorensen, Ph. is a symbol which signifies the logarithm of the reciprocal of the hydrogen-ion concentration).[5] The larger buffer substance continued for a long time will leave little acid which is necessary to form insoluble tribasic calcium phosphate, thus this important substance is elminated, leaving the

sodium ion in greater excess than the needs of the body. We see, therefore, that gastric acidity at the height of digestion is controlled largely by the choice of a buffer."[3]

Digestion of lactic acid milk and breast milk at the end of two hours have nearly the same Ph. 4, while for sweet cow's milk the Ph. 5.3, these are averages.[4] This has brought about a general use of acid milk among pediatricians. Milk can be buffered by culturing with an aciduric bacteria and by adding acids. In Richmond, Virginia, the streptococcus lacticus is used after pasteurizing the milk, culturing twelve hours to produce lactic acid.

minutes, and allowed to cool before adding the acid. Hot milk will curdle if acid is added.

Milk thus treated can be used anywhere in the country with greater safety than sweet milk. Typhoid and colon bacilli do not grow in this milk. As any acid is better than no acid the amount of acid can be reduced in certain cases. During the summer of 1924, we used at the Dooley Hospital in Richmond, 40 minims to one pint. The cultured acid milk is more convenient when available in cities, but not as safe as the boiled and acidulated milk.

I have had no cases of diarrhoea in private practice during the summer of 1924 that were

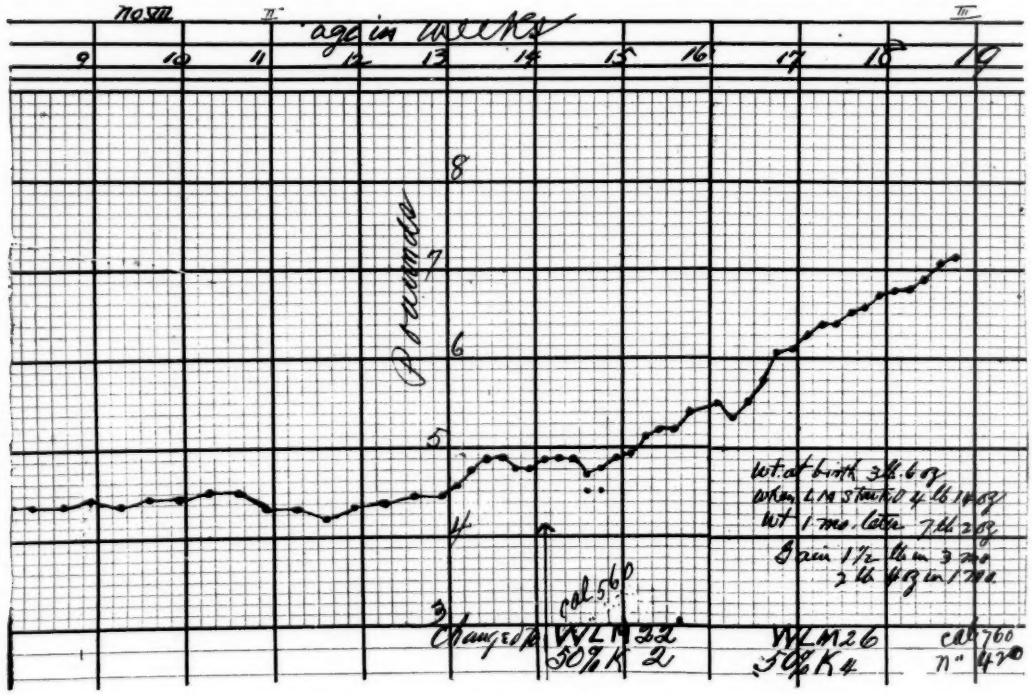

CHART No. VII.

Premature, born with gonorrhoeal ophthalmia. Weight at birth, 3 lbs. 6 oz. Fed on sweet milk and water for more than three months. When 14 weeks old changed to whole lactic acid milk. This infant gained more in one month on the lactic milk than in three months on sweet diluted milk.

Larger culturing will produce more acid. Faber has used hydrochloric acid in the milk. Hess, of New York, has used orange, lemon and tomato in the milk and finds the buffer action of these acids quite satisfactory. As devised by Marriott,[5] the U. S. P. lactic acid is most satisfactory. This product is seventy-five to eighty-five per cent lactic acid. One teaspoonful or drachm is used to one pint. The milk should be previously boiled three to five

on acid milk, and these cases were in Richmond and within a radius of 200 miles of Richmond.

As the treatment of a large number of the cases of diarrhoea is lactic acid milk, it is quite plain that while taking lactic acid milk as a food, diarrhoea is very improbable.

Bacillary dysentery of the Flexner type is not cured by lactic acid milk, but the lactic acid milk is better than any other form of milk.

The treatment of rickets by many pediatricians is acid milk. Bone formation is more

rapid. The most remarkable change is the much firmer muscle and firmer tissue.

The rate of growth is like that of well-nourished breast fed baby.

The bowels are easily regulated and no purgatives are used. Karo syrup, blue label, is used as the sugar. The caloric value of Karo syrup is 120 calories per ounce; the analysis is dextrin fifty-five per cent, maltose thirty per cent, glucose fifteen per cent. This is the least fermentable of the sugars, and thus can be used in larger quantities than cane sugar. We usually use a total of ten per cent to twelve per cent sugar. The bowel movements are easily regulated by an increase or reduction of the Karo.

Lactic acid milk is of especial value in premature, delicate and ill infants. It can be used where sweet milk or breast milk is not satisfactory.

The accompanying charts show children gaining in weight when fed on lactic acid milk.

Skimmed milk will produce tetany while lactic acid milk will cure tetany. There is enough calcium in food but the lack of acid prevents the utilization of the calcium.

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2. Finkelstein. Archives Pediatrics. 4, 228. April, 1924.
3. Grinnan. Spasmophilia in Infants. Va. Med. Mo. Vol. 51, p. 423. Oct., 1924.
4. Marriott. Amer. Jour. Dis. Children. Vol. 26 No. 9, p. 543. Dec., 1923.
5. Marriott. Amer. Jour. Dis. Children. Vol. 26 No. 9, p. 545. Dec., 1923.

925 *West Grace Street.*

REPORT ON THE INTRAVENOUS USE OF ARSENIC (ARSPHENAMIN) IN CERTAIN SEPTIC CONDITIONS.*

By JAMES H. SMITH, M. D., Richmond, Virginia.

The cases to be reported have been grouped as "septic conditions." It is possible some better term could be found to describe them. If it will tend to avoid any unwarranted inference, I would prefer to call them prolonged fevers. Of the six cases there was some probability that in three a spirochetal infection was at work. There is no great interest in this day and time in that such cases yielded to arsphenamin therapy, or in the fact that one of them, believed to be complicated by a streptoccic infection, failed to respond. Nevertheless, I believe these three cases do present certain features of interest: and as for the other three I cannot see any good reason to think spirochetal infection played any part in the etiology.

CASE I. White female, aged 38. Dr. J. B. Dalton was this patient's physician. When she summoned him at the onset of this illness about the middle of February, 1922, at his request I saw her in his stead. The patient had just had a chill, the temperature was high, and the leucocyte count was more than 20,000, with an increase of polynuclear cells. Thereafter Dr. Dalton attended the case and I saw her with him, from time to time.

On February 21, 1922, she was entered at a hospital where she remained until April 13th, 52 days. (Chart of Case I.) During that time the temperature ranged from 97 to 106 degrees, at first with daily variations, later showing a tendency to rise only every other day. The sharp rises in temperature were usually preceded either by a chill or definite chilly sensations, and there was frequent vomiting. No localization of any infection could be determined. Dr. Dalton persisted in patient diagnostic studies and therapeutic efforts, rather leaning to a diagnosis of malaria.

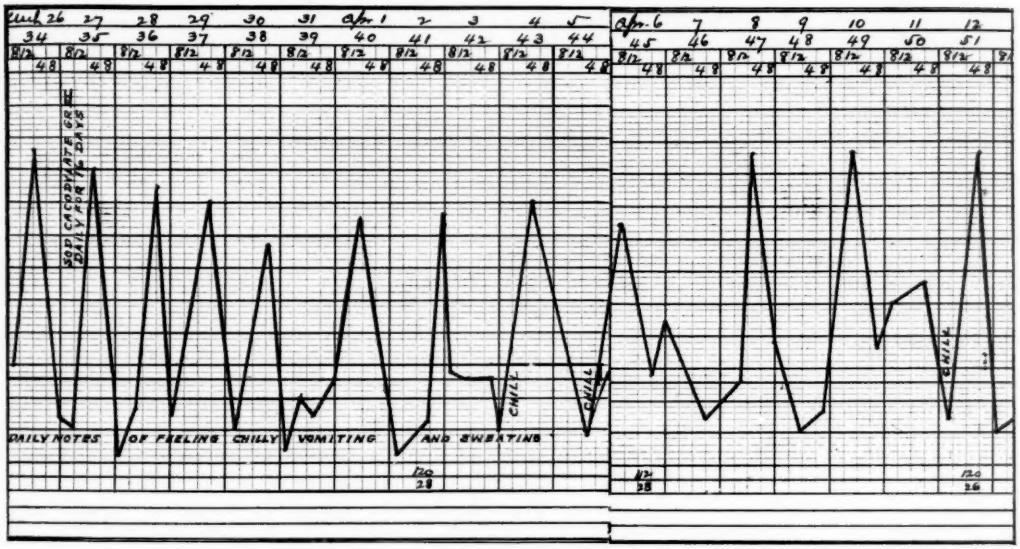
Therapeutic measures included bichlorid of mercury intravenously, vaccines, quinine, mercury rubs, sodium cacodylate, and quinine again.

On April 13th, for financial reasons, the patient was transferred to another hospital. For two or three weeks she continued to run the same type of temperature as shown in the chart. Dr. Dalton then administered 0.5 grams of neo-salvarsan, followed by a prompt decline from the steeple-type of temperature to a range of not over one or two degrees daily. A second dose of 0.5 grams of neo-salvarsan was given a week later, after which the temperature did not rise above normal during her stay in the hospital. She was discharged May 27th, approximately the 103rd day of her illness.

Four or five weeks after leaving the hospital, on her return from a visit to South Carolina, there was another sharp rise of temperature. Dr. Dalton promptly administered a third dose of neo-salvarsan, after which there was no further recurrence.

The polynuclear leucocytosis, the failure of repeated efforts to find the plasmodium and the ineffectiveness of quinine would, I think, point

*Read before the Medical Society of Virginia at its fifty-fifth annual meeting, held in Staunton, October 14-17, 1924.



Section of Chart of Case I.

to some infection other than malaria. There was no clinical or biological evidence of syphilis. One might think of a spirillum infection due to the bite of a louse, tick or bedbug, but the fever was not of the remittent or relapsing type characteristic of such infections. The true nature of the cause remained in doubt.

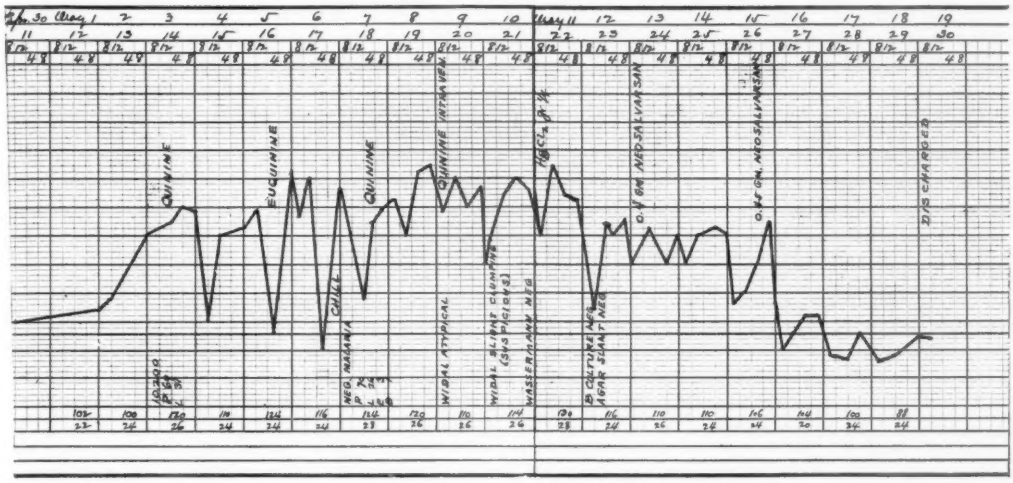
Case II. White female, age 37, seen with Dr. C. H. Lewis and Dr. A. L. Herring, May 12, 1923. On April 20th a Cesarean section had been done for contracted pelvis. The temperature range is shown in the chart of Case II.

Quinine was given by mouth and intravenously, and bichlorid of mercury intravenously, without apparent benefit.

May 13th, 0.4 grams neo-salvarsan was given, and two days later, the temperature having shown no marked effect of the first dose, a second dose of 0.45 grams was given. On the following day the maximum temperature was 99.2 degrees and no rise occurred thereafter.

Diagnostic Data Case I.

	Leucocytes	Polys.	Lymphs.	L. Monos.	Malaria.	Was'rm'nn	Blood Culture.
1st Examination	20,000	Increased					
February 21	20,000	87	13				
February 22					Negative.		
February 24						Negative.	Neg. 48 hr.
February 27	9,800	88	10	2			
March 10	12,000	92	8		Negative.		
March 12							Neg. 48 hr.
March 23	8,400	81	17	2			
April 28	47,800	91	8	1 Basophile			
April 30	19,200	84					
May 17	7,800	70					



Section of Chart of Case II.

There was little of a clinical nature to suggest typhoid fever despite the suspicious Widal reaction. On the other hand, no localized infection could be determined in the pelvis, the operative wound or elsewhere. The diagnosis was in doubt; the therapy was eminently satisfactory.

Case III. White female, age 44, was reported to have had a positive Wassermann reaction eight or ten years previously, for which she had arsphenamin, mercury and iodides. In January, 1924, her physician stated she had been "running an irregular septic type of fever" for about six months. She had had chills, vomiting and drenching sweats. There was an inflammatory condition of the pelvic adnexa which had been removed surgically, though it was feared at the time that a heart murmur which had developed early in the illness might indicate a septic endocarditis. A faintly positive Wassermann reaction in the Fall of 1923 was followed by a negative test prior to operation in January, 1924. In January and February the leucocyte count was normal. "Bright red spots" would appear on the flexor surfaces of the forearms following a chill. The temperature rarely went over 101 degrees, occasionally to 102 degrees. Sodium cacodylate was said to be poorly tolerated, being followed by a reaction of nausea, vomiting and increased temperature.

When seen in June, 1924, conditions had changed very little, the same type of temperature persisting. Arsphenamin was advised and it might seem that the luetic history furnished some indication for it, as well, possibly, as the belief that we were dealing with a bacterial endocarditis, though the prognosis was poor enough. Two doses of neo-salvarsan were given, to both of which the patient reacted

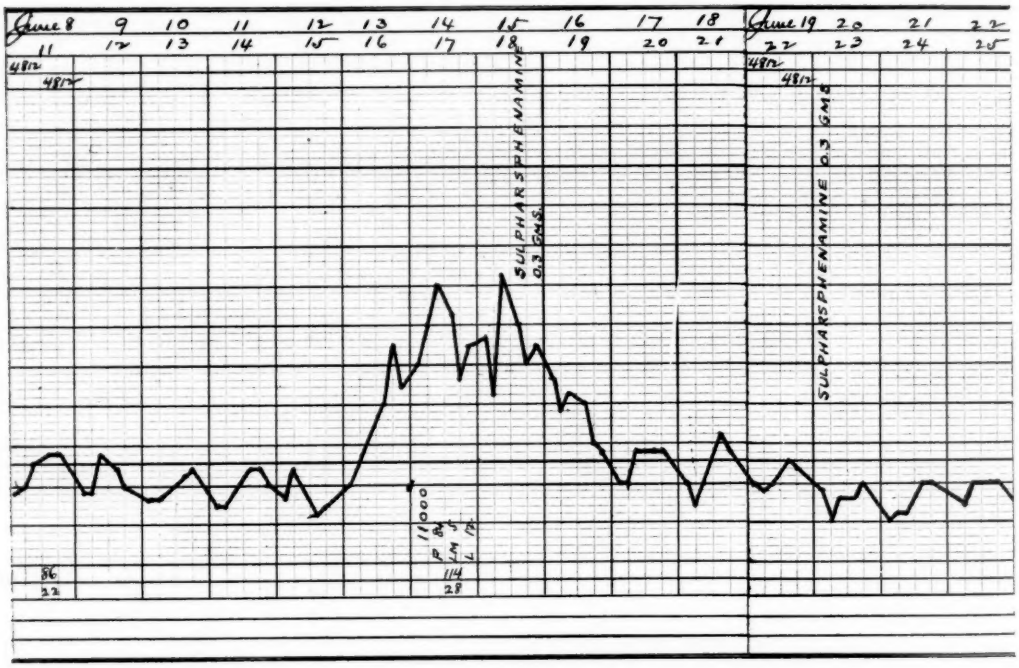
Diagnostic Data Case II.

	Leucocytes	Polys.	Lymphs.	Malaria.	Wassermann.	Blood Culture.	Widal.
April 20	10,800	72	26-2LM				
May 3	10,200	69	31				
May 7		70	26-3 Eos. 1 Bas.	Negative.			
May 9							Atypical
May 10					Negative.		Suspicious
May 12						Negative.	

badly. Death followed about two months later.

Case IV. White female, aged 40, was admitted to the hospital April 30, 1924, for pyelitis. The course of the illness was not unusual and the temperature remained practically normal after the first week (Chart of Case IV). The highest leucocyte count was 12,400, with 72 per cent polynuclears. Treatment was conservative and she was discharged on May 19th.

Case V. White male, aged 58, was known to be febrile on and after July 9, 1924, and the fever was believed to have begun some weeks earlier. The chart of Case V shows the type of fever. The case presents some points similar to Case III. When he came to Richmond, August 27th, there was a systolic murmur loudest at the base, the liver was palpable one inch below the costal border, dry cough



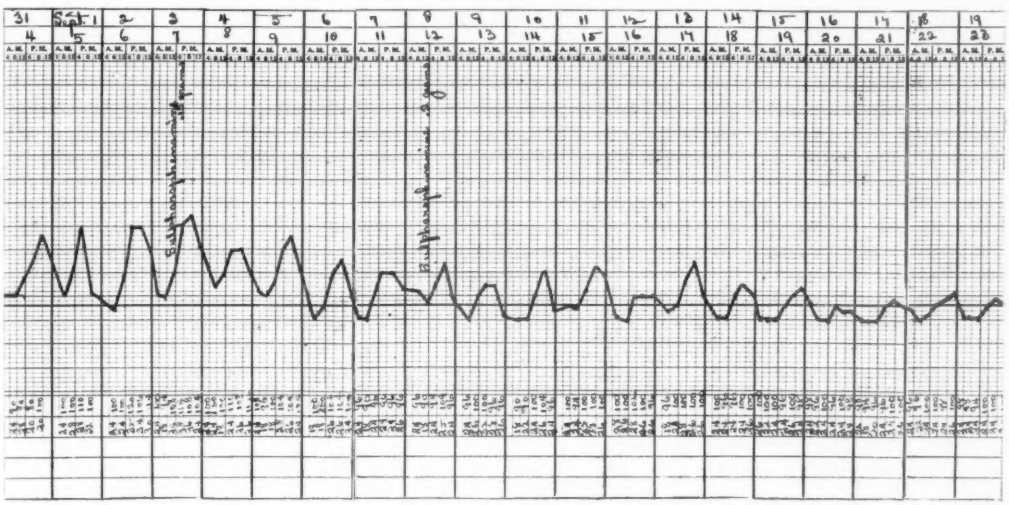
Section of Chart of Case IV.

On May 28th, the patient re-entered the hospital on the service of Dr. Stuart Michaux and Dr. Joseph F. Geisinger. The temperature ranged from normal to 102 degrees. The leucocytes were normal. Cultures of B. coli were obtained from both ureters on June 3rd. Cystoscopy and ureteral dilatation were done, but the temperature up to 102 and 103 degrees for periods of three or four days tended to recur. On June 15th, 0.3 grams sulpharsphenamin was given, and the temperature became normal on the 17th and remained so thereafter. The dose was repeated June 20th. There has been no recurrence of fever or other symptoms, though B. coli were still present in the urine at the last examination in September.

and dyspnea were troublesome, a circumscribed patch of small moist rales or a friction rub could be heard above the right diaphragm. This persisted for several weeks. The leucocyte count was normal, except for a relative lymphocytosis. I thought he had an abscess above or below the diaphragm on the right side. Dr. Hodges' X-ray findings, however, showed inflammation below the left diaphragm. The aorta appeared only slightly widened. Dr. Harrison reported several teeth as showing structural changes about their root ends on X-ray examination but concluded he did not think the patient's mouth had any direct bearing on his condition. The patient had used

alcohol liberally over many years. There was no history of syphilis, but the Wassermann test was reported four plus. A second was done and was reported negative. A third in the same laboratory was reported "anti-complementary," and part of the same specimen submitted to another laboratory was reported two plus. Blood culture was negative. The general clinical condition did not particularly suggest a septic infection. At this point, though confusion reigned in the field of serum diagnosis, there was some comfort in feeling there was a chance to help him with arsphenamin whether the fever was syphilitic or of pyogenic origin. The heart gave rise to more hesitation in prognosis than did the liver. On September 3rd, he was given 0.15 grams sulpharsphenamin, with subsequent doses of 0.2 grams on the 8th and 0.5 grams on four later dates. The effect on the temperature is seen in the Chart of Case V. The slight rise of temperature from September 21st to 25th was coincident with an abscessed tooth which was incised and discharged pus freely. There was no fever after the 25th. On September 20th, after the second injection of sulpharsphenamin, laboratory number one reported a strongly positive Wassermann by the Kolmer method and laboratory number two a two plus reaction as before. The latest test was reported moderately positive by the Kolmer method. A larger initial dose would probably have been better, but we were cautious of a liver already damaged.

Prolonged syphilitic fevers are by no means unknown. Favre and Contamin, of France,[1] report the case of a man who presented an extremely high and irregular fever of six months' duration, which they concluded to be due to syphilis. The abstract in English of their report is not completely convincing. There is no reference to the Wassermann reaction and, though the man had been in Africa twelve years, no mention of attempts to exclude other forms of spirochetal infection. In part the abstract reads: "It was thought to be tubercular, but manifestations of painful and generalized multiple periostitis, enlargement of the liver and spleen and an old genital lesion suggested syphilis. The fever and bone pain disappeared rapidly after specific treatment." Osler and Churchman[2] say, "The profession scarcely realizes that protracted fever of almost any type may occur in tertiary syphilis. It is probable that many of the cases of obscure, unclassifiable fevers which are described from time to time are due to latent syphilitic lesions. A man may have quite extensive gummatous disease of the liver without pain or without great enlargement."



Section of Chart of Case V.

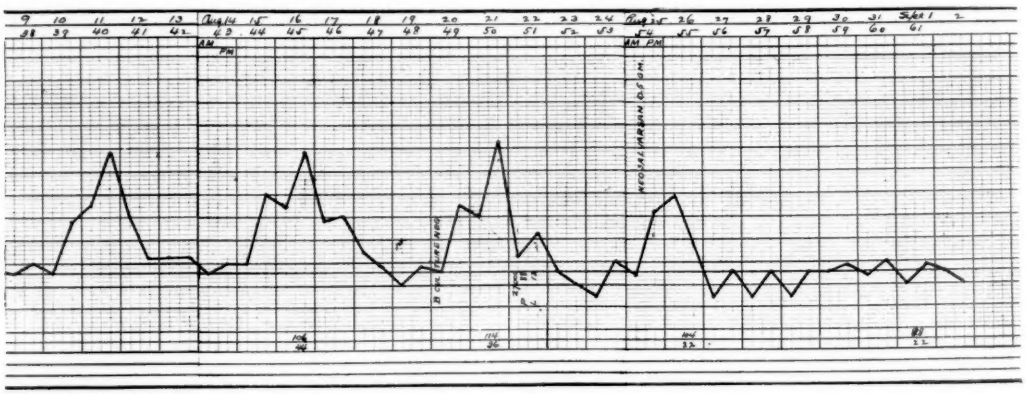
In the above Case (V) I am inclined to regard syphilis as the cause of the fever. As

1. Lyon medicale, 1923, 4, 303.
2. Modern Medicine: 2nd Ed. Vol. II., page 159.

much as I should like to convince myself that arsphenamin can control pyogenic infection, we have here an instance of slight recurrence of fever apparently due to the development of a dental abscess during the course of arsphenamin treatment. Some years ago I treated a febrile case diagnosed syphilitic aortitis having a strongly positive Wassermann reaction, the fever promptly subsiding under the administration of neo-salvarsan.

Case VI. White female, aged 50. About June 3, 1924, the left index finger was bitten by a pet cat. The animal showed no sign of any disease. The wound seemed to heal but, after a week or ten days, a dark spot appeared at the site of the bite. Infection spread in a circular direction and extended to the hand. Redness and mottling of the forearm appeared. The axillary lymphatics of the corresponding side became enlarged and painful. Fever developed June 28th. The finger was amputated July 2nd. Pathological examination revealed only infection and ulcer formation. Blood culture was negative July 5th, as was the Wassermann test. On July 9th, blood culture yielded staphylococcus albus. The operative wound healed kindly, but some erythematous involvement persisted in the forearm. The peculiar remittent temperature range, about three days off and three days on, persisted for 54 days with nausea, vomiting and sweating during the febrile periods. (Chart of Case VI.) On August 20th blood culture was negative. The leucocyte counts were within normal limits on July 2nd and July 5th. August 22nd the total count was 27,000 with 88 per cent polynuclears and 12 per cent lymphocytes. August 25th, 0.5 grams neo-salvarsan was given and a second dose advised. The complete remission of temperature and other symptoms after Agust 26th led to the omission of the second dose, and she was discharged September 3rd.

On September 9th, the patient called Dr. J. D. Boisseau, stating that on the 6th she had begun to feel chilly and the hand became sore and inflamed in the region of the operative wound. The erythematous involvement in the forearm also had recurred. Temperature was 102 degrees and there was nausea and vomiting. Leucocyte count 22,700; 82 per cent polynuclears, 18 per cent lymphocytes. Moist dressings were applied to the hand and arm, and 0.5 grams neo-salvarsan given on September 10th. The temperature was normal within 36 hours and did not rise again. Dr. Boisseau gave three subsequent doses of neo-salvarsan. The local inflammatory symptoms subsided with the temperature, though a discoloration persisted at the site of the erythematous lesions on the forearm. Notwithstanding the report of a staphylococcus growth from blood culture, this case, I now believe, was one of so-called rat-bite fever, in which arsphenamin is a recognized specific. I quote from a recent issue of Progressive Medicine: "Rat-Bite Fever: O'Leary[3] discusses the dermatological aspect of this unusual condition, and reports two cases seen at the Mayo Clinic.



Section of Chart of Case VI.

"Rat-bite fever in general is identified by the history of a bite of a rat, cat or dog, with

3. Archives of Dermatology and Syphilology, 1924, 9, 293.

a primary incubation period of from ten to thirty days before the appearance of local reaction at the site of the bite, by constitutional prodromes and symptoms of general infection with a two to seven day intermittent fever, by the fairly characteristic erythematous indurated plaques in the skin, which undergo exacerbation with each rise of temperature and subside between times; by the prolonged course (six months) in untreated cases, by the prompt response to the intravenous administration of arsphenamine or neoarsphenamine and by the finding of *spirocheta mosus-muris*. The last mentioned criterion is not essential to a diagnosis, as observers outside of Japan have been unsuccessful in isolating the organism.

"The differential diagnosis of the local reaction may include pyogenic cellulitis, giant chancre and erysipelas, and, on the basis of the constitutional symptoms, malaria, relapsing fever and trench fever.

"The treatment consists of intravenous injections of one of the arsphenamines given in doses proportional to body weight. It may be necessary to give four or five injections of the drug at five-day intervals, and also to give one or two injectons after the temperature has entirely subsided to prevent relapse."

Boggs[4] in Osler's System gives additional data to the effect that the bite wound usually heals spontaneouly in a few days. Coincident with the onset of the paroxysm, the bite wound becomes swollen, bluish red in color, and usually shows suppuration and necrosis later on. After sloughing, a circumscribed ulcer is left which heals rapidly. The blood shows a moderate leucocytosis. Hata has reported eight cases treated with salvarsan with good results.

Discussion.

I know that I have proved nothing, but I hope that I have suggested something. I believe that the arsphenamin had a definitely curative effect in the five successful cases. The relief following further treatment when recurrences developed in Cases I and VI helps to confirm the belief. The question is, did we luckily stumble on successful therapy in Cases I, II and IV because, unknowingly, we were treating some form of spirochetal infection as happened in Case VI; or were we dealing with pyogenic infections as we were inclined to believe at the time? I have made no extensive search of the literature of the subject, but to make the matter at all clear, more intensive, or at least more successful, more bacteriological studies will be required than were made in the cases I have reported.

In May, 1922, Joseph A. Capps read a paper before the Association of American Physicians on the arsenical treatment of chronic infectious endocarditis.[5] He reported eight cases treated with sodium cacodylate, with only two deaths and six survivals. Of the six, four had remained in good health for two years and more, and were therefore classed as recoveries. The other two were showing improvement. Capps quotes Allison[6] to the effect that "Salvarsan, diarsenol and arsenobenzol possess a distinct bactericidal power against virulent strains of streptococci in vitro in dilutions up to 1:3000, and an inhibiting power for at least twenty-four hours in weaker solutions. They possess bactericidal action against streptococci also in the blood stream of experimental animals. They possess hopeful possibilities for the treatment of streptococcus infections in human subjects as shown by limited human experience."

Capps continues: "Our own experience with the arsenic treatment inclines us to believe that the drug in the ordinary dosage is 'inhibiting' rather than bactericidal, and that it should, therefore, be given over a long period in order to bring about the death of the organisms," and he concludes:

"We have employed cacodylate of soda because of its apparent safety but other forms of arsenic may prove superior."

I do not know of any report so favorable as that of Capps in the treatment of chronic infectious endocarditis with arsenic or by any other means. This condition presents difficulty inherent in the localization of the infection on a heart valve constantly flapping in the blood stream, strategically an ideal position for the streptococcus to occupy. At any rate experimental evidence of a bactericidal or inhibiting effect of arsenic on the streptococcus is encouraging.

Young and Hill[7] report brilliant results in

4. Modern Medicine, 2nd Ed. Vol. I, p. 1030.

5. Capps, J. A. The Arsenical Treatment of Chronic Infectious Endocaritis; Am. Jour. Med. Sci. CLXV. No. I, Jan., 1923, p. 40.

6. Allison; Jour. Med. Res., 1918, 38, 1, 56.

7. Young, Hugh H. and Hill, Justina H.: Treatment of Septicemia and Local Infections by Mercurochrome—220 Soluble and By Gentian Violet: Jour. Am. Med. Asso. 82, 9, Mch. 1, 1924, 669.

the treatment of septicemia and local infections with mercurochrome in seven cases and equally good results with gentian violet in five cases. From data at hand they regard mercurochrome as especially efficacious against B. coli and gentian violet against the staphylococcus.

Certain cases of streptococcus septicemia failed to respond to gentian violet and others failed to respond to mercurochrome. On the other hand reports of some cures of streptococcus septicemia with mercurochrome had reached the authors. It would seem that to establish a usefulness for these two preparations, it remains only to come to a good understanding of their indications, dosage and possible contra-indications. I would also like to see more data collected on the use of arsphenamin in these infections. At present, my attitude toward it is that I shall be inclined to try it in any infection that presents no clear indication for any other treatment and which at the same time seems to demand something more than the supportive and symptomatic treatment we are accustomed to apply. As examples other than the cases reported come to mind intractable cases of erysipelas or rheumatic fever unimproved by large doses of salicylates. It would not seem wise to give arsphenamin indiscriminately in fevers. Especially should nephritis and degenerative processes of the liver lead to caution.

In reporting the above cases at this time the object is to elicit information as to the experience of others, and to suggest further experimental trial in selected cases.

SUMMARY.

Six cases of prolonged fever treated with arsphenamin are reported.

One, diagnosticated chronic bacterial endocarditis and syphilis, was not benefited. The other five seemed to respond to treatment.

Of the five successfully treated one was believed to be syphilitic hepatitis and aortitis, with dental infection; one rat-bite fever; one pyelitis due to B. coli; and the other two of unknown etiology, with the evidence appearing to favor pyogenic infection.

A REVIEW OF OPERATIONS ON THE THYROID AT ST. ELIZABETH'S HOSPITAL, RICHMOND, VIRGINIA, FOR YEAR ENDING OCTOBER 10, 1924.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

Surgery of the thyroid gland involves many different conditions. The removal of a simple adenoma of the thyroid, which does not produce any constitutional symptoms, is a comparatively easy matter, and concerns merely the technical details of the operation. On the other hand, operations upon exophthalmic goiter require not only a different type of surgical technic from that used in excising a simple adenoma, but also demand the utmost consideration of the constitutional effect of the diseased thyroid gland.

A valuable aid in determining whether the goiter has any constitutional effect, and if so its extent, is the calculation of the rate of basal metabolism. In many cases this gives helpful information, but it should be regarded only as one of the clinical signs, like the degree of temperature in a fever, and must be considered along with the other signs and symptoms of the case.

Calculation of the basal metabolism seems to be even more valuable in hypothyroidism than in hyperthyroidism. Of course the advanced hypothyroid with the classical symptoms of a cretin or myxedema is easily recognized, but the mild cases are often very confusing.

Dr. W. H. Higgins has studied a group of these mild hypothyroid cases which he calls "larval myxedema," and he is reporting his very interesting observations to the medical section of this Society. Patients that heretofore have been considered neurotic, with ill-defined symptoms, headaches, and many of the so-called neurotic symptoms, have sometimes been found by him to be mild hypothyroid cases, and treatment along this line has as a rule shown rapid and marked improvement. It is important to recognize hypothyroid cases, for with rare exceptions they should not be operated upon, but should be treated medically. There are instances, of course, in which the pressure of an adenoma may cause deficient secretion, and here the adenoma should be removed, but none of the normal thyroid gland should be sacrificed.

Until last October, 1923, my personal experience with operations for hyperthyroidism

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had been a rather unhappy one. Cases of colloid goiter or simple adenoma gave no particular trouble, but it seemed difficult to tell just when the so-called cycles of hyperthyroidism began and ended, and too frequently after a beautiful operation the patient died from acute hyperthyroidism. Ascertaining the basal metabolism rate aided considerably, but the basal metabolism itself is only one of the features to be considered, though to be sure it is a rather important one. Until a year ago my state of mind was anything but clear in regard to the best treatment for hyperthyroid cases, and I had gradually drifted into an ultra-conservative view. During the latter part of 1922 and the first part of 1923 I did no radical operation upon hyperthyroid cases. When any operation at all was done it was simply a ligation. The patients were then submitted to radiologic treatment by Dr. Fred Hodges, who has been very successful with certain of these cases. Many of them were greatly improved under this treatment, but a few were not. I had seen the work at the Mayo Clinic, and knew their classification of cases. With the great skill of their specialists in internal medicine they were able to select patients suitable for operation, and the others died a so-called medical death. Within the last two years, however, they have developed the use of Lugol's solution which makes many cases that were formerly classed inoperable at the Mayo Clinic a reasonably safe risk for surgery, so that their medical deaths now have been reduced to a minimum. Lugol's solution is used in cases of the exophthalmic type but not in toxic adenoma. According to Plummer, digitalis should never be given in hyperthyroid cases.

In the clinic of Crile, however, where operation was practically not refused any case, the mortality rate was exceedingly low. Early in October, 1923, I visited Crile's Clinic, and was greatly impressed by the manner in which he handles his hyperthyroid cases. His present method is the result of the building up of many different features through a period of many years. In the desperately sick cases he ligates first one superior thyroid artery and a few days later the other, doing the operations in the patient's bed, and then he permits the patient to go home for a few months. The patient returns whether there is improvement or not, and most of the thyroid gland is removed. If the condition will permit, both lobes are partially resected at the same operation. The patient is carefully watched during the operation, which is done under light nitrous oxide-oxygen anesthesia with infiltration of novocain solution, and if the pulse rises suddenly or the patient's condition appears bad the operation is stopped at any stage and the wound packed with gauze soaked in acriflavine solution. The operation is concluded within the next few days, preferably on the following day. An abundance of water is given by mouth, rectum, and subcutaneously if necessary. If there is a post-operative rise of temperature from hyperthyroidism, icebags are placed about the patient, the number of icebags being determined by the degree of temperature. If the temperature is 101°, four icebags are used; if 102°, eight to twelve icebags, and if as high as 104° a complete ice pack is employed.

With this technic Crile has not lost a patient from post-operative acute hyperthyroidism for several years, although a large percentage of his work consists of operations for hyperthyroidism. It is impossible not to be impressed with his results and with the enthusiasm and teamwork of his clinic. Many of these details of treatment have been enforced under his hands for years, but new things have been added and old ones to some extent rearranged until his management of these cases now seems almost to approach perfection.

It is probably a mistake to follow too blindly the methods of any one clinic unless the local conditions are similar. However, I was so enthusiastic over the results of the treatment of hyperthyroidism in Crile's Clinic that after returning home I adopted most of his methods. We added the use of Lugol's solution in many cases, which seems often to be a distinct aid. During the year ending October 10, 1924, I have done thirty-five operations upon the thyroid gland. These were performed upon twenty-one patients. Ten of the cases were either simple adenomas or colloid goiters. In nine of these only one operation was done on each patient. In one case two operations were done as there was an accessory thyroid just above the larynx which was removed subsequently. Twenty-three operations were performed upon eleven hyperthyroid patients. In two of these patients only ligation of the superior thyroid arteries was done, as the improvement seemed to be so great and the size of the thyroid decreased so markedly that sub-

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sequent partial thyroidectomy was not indicated. In two patients there were ligations of the superior thyroid with subsequent partial thyroidectomies. In these patients only the right thyroid artery was tied. Seven partial thyroidectomies were done without previous ligation of the superior thyroid arteries by me. In one of these patients the superior thyroid arteries had been ligated by another surgeon a few months previously, and there was apparently but little improvement. A bilateral thyroidectomy was done on this patient, and while she made a good recovery there was a rather marked reaction for a few days, the temperature reaching 103. In three patients the partial thyroidectomies were done in two stages, removing most of the right lobe and packing the wound with acriflavine gauze, and a few days later operating upon the other lobe. Four operations were for removal of packing and closure of the wound, and three for excision of the scar after the patient had recovered from the effect of the operation.

Several of these hyperthyroid patients I had had under observation or whose thyroid arteries I had ligated months previous to the thyroidectomy. One case with marked protrusion of the eyeballs seemed to be a particularly bad risk. She had become pregnant. Within the preceding year I had tied both thyroid arteries and she had had extensive Roengten-ray and radium treatment. There had been some slight improvement, but her condition was still serious. A right partial thyroidectomy was done. The wound was packed with acriflavine gauze and two days later most of the left lobe of the thyroid was removed and the wound closed. She made a satisfactory recovery, though she aborted a few days after the operation. She had previously miscarried whenever she had become pregnant. She is now in excellent condition.

Results

There was no fatality in any of these cases. We have not had a complete follow-up of all of them because it is too soon, but I do not know of any one of these patients who has not been benefited and many of them are practically well. For instance, Miss N., who returned for excision of the scar a few months after thyroidectomy, had gained fifty-four pounds from the time of the first operation to the time when the scar was removed. Her pulse when she entered was sometimes as high as 120; when the scar was removed after the thyroid symptoms had subsided her pulse was from 72 to 80.

The relief to my mind as well as the benefit to the patients has been great. Formerly, I dreaded to see a hyperthyroid patient. I found it difficult to determine from the cycles the proper time for operation, and while much benefit was usually derived from ligation of the thyroid arteries and subsequent Roentgen-ray treatment, some cases were not improved by this treatment, which was always slow. During the past year I have refused to operate upon no thyroid case, and we now regard the advent of a hyperthyroid patient with pleasure instead of with anxiety.

The operative technic of Crile is founded on the principle of gentleness. An almost transverse incision is made about midway between the sternum and the upper margin of the larynx. The flaps are dissected up and down in the midline, exposing as little raw surface as possible, and then the ribbon muscles are split in the midline. The thyroid gland is divided down to the fascia over the trachea. The vessels are caught with sharp-nosed hemostats. The right lobe is dissected from the trachea. The attachments of the right upper lobe to the larynx are clamped and divided along with the superior thyroid artery. The thyroid lobe is then easily delivered into the wound and the vessels on the outer margin are clamped. Most of the thyroid lobe is removed, cutting toward the fingers which are placed over the trachea and in the space created by the dissection of the median part of the thyroid from the trachea. This gives a definite guide and enables the operator to leave a small layer of thyroid tissue without exposing the recurrent laryngeal nerve. One of the very important points in Crile's technic is his method of controlling the vessels. Instead of tying each vessel individually he groups the hemostatic forceps together in bunches of three or more and with rather stout catgut in a round needle he whips over the small layer of thyroid tissue within the grasp of these hemostats. This is done quickly and greatly shortens the time of operation. At first it seems that there would be secondary bleeding. Care is taken not to insert the needle too deeply and to whip it over at least twice. In this way the ligature suture can be tied down snugly without cutting through the soft friable thyroid tissue. If the patient is doing well both lobes are removed

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at the same operation. If the pulse becomes much more rapid during the operation it is safer to discontinue the operation and to pack the wound with acriflavine gauze (1 part acriflavine to 10,000 parts sterile distilled water), inserting no sutures in the muscle and possibly only a single suture in the skin flaps, though this is not necessary. Two or three days later the packing is removed under local and gas anesthesia, and the other lobe is partially removed or the wound is sutured.

One disadvantage of this technic is that a rather unsightly scar is sometimes left. In these operations, however, as in the operations for cancer, the first indication is for cure of the disease. Later the patient may return and a plastic operation can be done under local anesthesia which will give a satisfactory scar. This seems better than attempting to make too great efforts for a small scar in tissue that is infiltrated with exudate resulting from the packing of the gauze.

I feel convinced that this treatment of hyperthyroidism or some comparatively slight modification of it is the most satisfactory method that can be adopted. It has given in my hands not only an absence of mortality and a very low morbidity, but has brought to me a peace of mind in regard to thyroid surgery that it was impossible to possess before.

A PRACTICAL METHOD OF BLOOD VESSEL SUTURE.*

By E. L. KENDIG, M. D., Victoria, Va.

The indications for blood vessel sutures are considered rare. Ligation is all that is necessary if collateral circulation will take care of the situation. There are cases, however, when collateral circulation will not be established, and then a blood vessel suture should be considered in order to provide for the maintenance of the blood supply to the part. According to Sloan, experiments have proven that only 33 per cent of the ligated common carotids recover. Lexer declares that gangrene follows ligation of the popliteal artery in 50 per cent of cases, of the femoral artery in 20 per cent, of the femoral artery and vein together in 50 per cent, and the femoral vein in 1 to 2 per cent. These percentages, as given by other authorities, may differ some but not to a great extent.

I shall not attempt to describe all the various methods of blood vessel sutures now used. Among them the Carrel over-and-over stitch with guy ropes held by assistants, the Horsley cobbler's stitch with guy ropes held by the Horsley Suture Staff, and the eversion methods by Dorrance and others are considered the best.

The indications for blood vessel sutures are practically limited to: (1) wounded blood vessels where a suture is indicated rather than a ligature; (2) excision of malignant tumors in the field of large and necessary blood vessels; (3) radical cure of aneurisms when collateral circulation will be insufficient; (4) direct transfusion of blood. And even then in these indicated cases, asepsis, lack of tension on the sutured vessel, an uninjured and well approximated intima, and the prevention of blood coagulation are essential to a successful suture.

Blood vessel sutures when indicated in operation for aneurisms and malignant growths are determined upon after deliberation, and there is always time to make any preparation necessary. Blood vessel suture for direct transfusion need not be considered as there are easier and simpler methods of accomplishing the same results. It is in the repair of the wounded blood vessel that emergency measures are demanded. If the case is one that can be treated with deliberation, the necessary preparations can be made to unite the blood vessel by one of the methods now used. Also, in the meantime, the Matas aluminum band can be used in selected cases to test the necessity of a blood vessel suture. If it is an emergency, there will be no opportunity to make a test of the collateral circulation and there will be no time to make special preparations for the suture.

To successfully unite a vessel, there are at least five requisites: (1) indication for the blood vessel suture; (2) proper condition of wound, such as asepsis, lack of tension, etc.; (3) surgeon with blood vessel suture experience, (4) several assistants; (5) the necessary material. It will not be often that all of these requirements will be together in an emergency at the same time. The chances of occurring will be just about as good as they are to draw what our poker friends call a "Royal Flush." In order to make an emergency blood vessel suture practical, some of these various requisites must be made unnecessary. The only way to do this would be to have a method which would give good functional results, and for its per-

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formance would require a surgeon less experienced in this particular work, fewer assistants, and the needles, thread, and instruments ordinarily available.

To meet the demands of the emergency cases I have experimented in the laboratory with what I might term a "continuous interrupted suture."

By this method I have successfully sutured under emergency conditions the abdominal aorta, common carotid, and the femoral artery of medium size dogs, a more complete report of which I expect to give later. In the discussion of this suture it is only necessary to

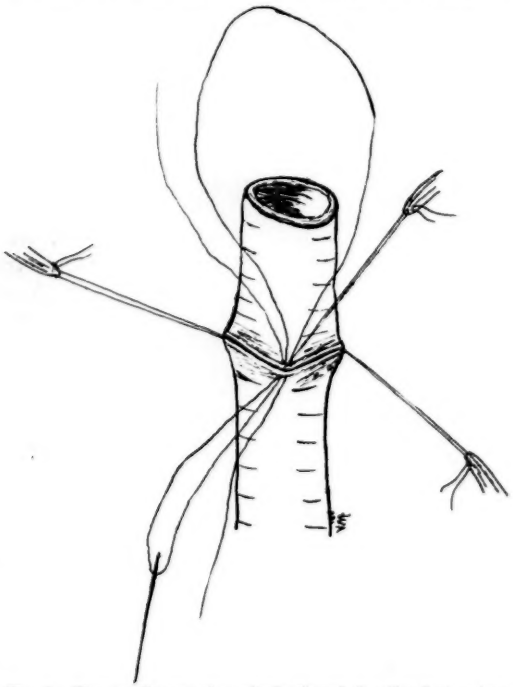

Fig. 1.—The needle carrying single thread for the first suture and the double thread for the second suture has been introduced. This double thread is drawn through, taking up the slack between the two needle holes. The continuous ends of the thread between the first and second sutures are then tied.

describe the introduction of the needle and the tying of the thread. The other details do not differ from the generally accepted methods of blood vessel repair. In the continuous interrupted method it is easier to place the sutures when guy ropes, as suggested by Carrel, held by assistants or by the Horsley Suture Staff, are used, although they can be placed without these holding threads. No. 000 20-day chromic catgut, or any fine silk which will thread into a No. 9 or smaller needle can be used. A round needle, either curved or straight, will work satisfactorily. Boil the needles and silk in vaseline. If catgut is used, it will be necessary only to anoint the needles and thread in sterile vaseline. When using catgut, thread the needle on the whole length of the tube. When silk is used, thread the needle on a piece three or four feet in length.

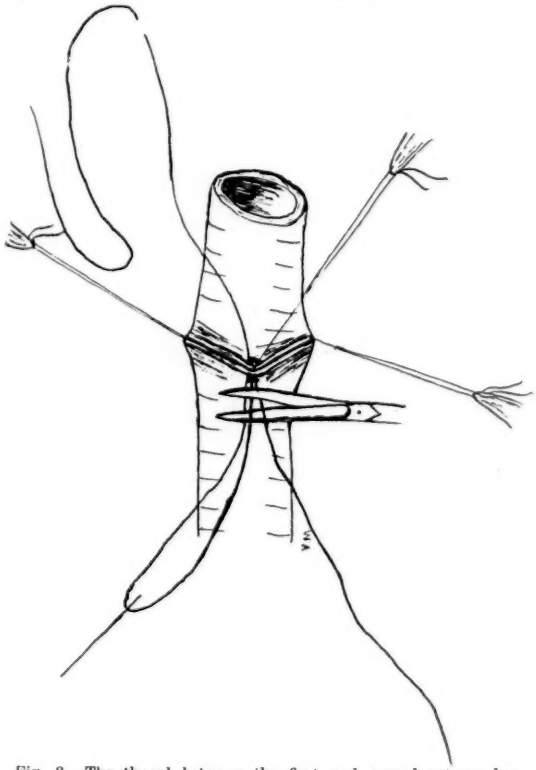

Fig. 2.—The thread between the first and second sutures has been tied and the two ends are ready to be cut off.

For this suture pass the needle through the cut end of the vessel from without inward, taking just bite enough to give it a good hold and in like manner through the opposite end of the vessel from within outward. Draw the thread through about three or four inches and remove the needle. Now thread the needle on the other or long end of the thread. If you have help, the assistant or nurse can be threading another needle on this long end, while the first suture is being introduced. Pass the needle over the long end of thread until within three or four inches of the vessel and then introduce this second suture through the two ends of the vessel as in the first suture,

pulling the needle through with the double thread until the slack between the two sutures is taken up. Tie moderately tight the loose end of the first suture to its continuous thread in the loop of the second suture. After tying, cut off both ends near the knot and remove the needle. This leaves a loose end like the one left in the first suture. Put in the third suture like the second, tie, and continue until the whole circumference has been sutured. The distance between the needle holes should be close enough to avoid puckering of the vessel walls when the sutures are tied. This method brings together under evenly distributed pressure the whole circumference of the two ends of the vessel, approximating the intima without injury and resulting in little or no exposure of the thread in the lumen.

A disadvantage of this method is that it will take a few minutes longer than with the running suture. Also the large needle and thread may require a little deeper bite in the end of the vessel and in that way evert more of the vessel wall, making the lumen possibly a little smaller. Archibald Smith's researches show, however, that sutures bringing the intima together in this way do not tend to stenosis.

The advantages of the method are: (1) each suture being tied after it is put in, the ends of the vessel are held together in good position each time for the next introduction of the needle—this makes it possible to do the suture quite well without the guy ropes; (2) the adjacent thread of the sutures passes through the same needle puncture, which fills up the needle hole, thereby helping prevent hemorrhage, and makes certain that all of the circumference of the two ends of the vessel are in the grasp of the thread, thus binding the two ends together in a very strong union; (3) this double thread through each needle hole and the grasp of the entire circumference of both ends of the vessel by the sutures permits the use of the larger needles and thread. The large needles and thread make the suture more easily performed by the average man, and the larger suture material con be readily found when needed in a case of emergency.

The use of catgut in the suture of blood vessels heretofore has been impracticable because the gut was too large to obtain success by the methods used. Binnie mentions the fact that catgut swells after being placed in tissue and points this out as a good reason for its use in blood vessel suture. In this way it fills up the entire needle hole and hemorrhage is prevented. It is well known that silk remains in the fibrous tissue union of the vessel for a long time, sometimes being separated from the blood stream only by the thin endothelial lining of the vessel. Catgut has the advantage of being quickly absorbed. The use of the larger needle and thread in this method makes the use of catgut sutures more practicable.

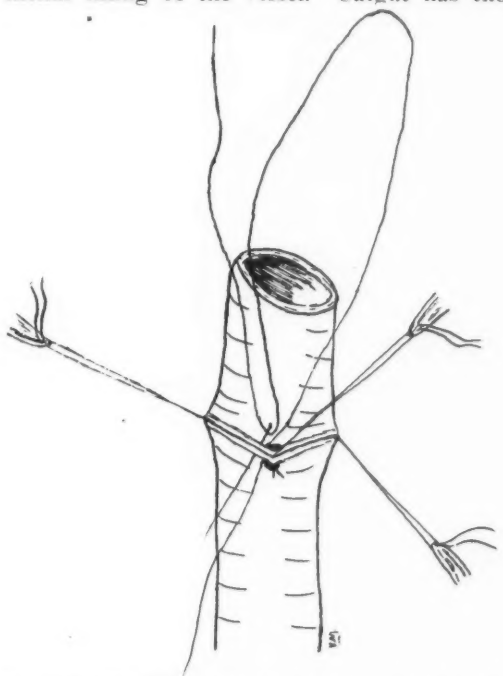

Fig. 3.—The tied ends of the thread between the first and second sutures have been cut, the needle has been threaded on the other end of the suture material, and introduced with a double thread for the third suture. The continuous thread of the third and second sutures will be tied like the second and first.

I would like to say, in conclusion, that my work in this connection does not lead me to believe that this continuous interrupted blood vessel suture will take the place of the present accepted methods when the conditions for their use are favorable, but it does show that this is a practical blood vessel suture and one that will serve a useful purpose in cases demanding emergency blood vessel repair.

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DISCUSSION.

DR. STEPHEN H. WATTS, *University*: I have been interested in blood vessel suture for a good many years. In 1907 I reported the results of a series of experiments in dogs in which the vessels were sutured by the Carrel method. Of thirteen circular anastomoses of the common carotid artery, all were perfectly successful as shown by autopsies performed from twenty-eight to eighty-two days after operation. The jugular vein was also sutured thirteen times with ten successes. In the three unsuccessful cases there was more or less occlusion of the lumen due to thrombosis at the site of suture.

This work, of course, requires the best of technic but with good technic the results are good. I cannot see that the method described by Dr. Kendig offers any advantage over the Carrel method in clinical work.

DR. J. SHELTON HORSLEY, *Richmond*: Suturing blood vessels is a procedure that has more experimental than clinical interest. It is, however, valuable from a clinical standpoint because, even though it may not have many clinical applications, acquiring the technic in the experimental work, undoubtedly makes for more delicacy and accuracy in the technic of the surgeon who does the work. I have used finer needles and thread than in the specimen shown by Dr. Kendig, but doubtless in large vessels the necessity for very fine needles may not always exist.

I have had one patient in whom the brachial artery was cut just below the elbow, and he was brought to me about an hour after the injury. Some one had put a tourniquet on to stop the bleeding. I united the severed vessel end-to-end by the technic I had worked out and the flow was immediately established. The patient had good use of his arm except for a slight injury to the median nerve that was done at the same time the artery was cut in two. This has, I believe, recovered also.

It would certainly be ideal for every operator to have the ability to suture blood vessels. While the possibility of emergency for this work is very rare it does exist and should be borne in mind.

DR. E. L. KENDIG, *Victoria*, closing discussion: You will recall that I stated before reading this paper that an accident requiring blood vessel suture suggested these experiments, and the results of this experimental work prompted this paper. I am glad to have Dr. Watts and Dr. Horsley, both authorities on blood vessel surgery, discuss this subject. The results of blood vessel suture under ideal conditions are usually good, but under emergency conditions are not generally successful. As to the comparative merits of this suture and the Carrel method, I will refer to the concluding sentence of my paper in which I said that my work in this connection did not lead me to believe that this continuous interrupted blood vessel suture will take the place of the present accepted methods when the conditions for their use are favorable, but it did show that this is a practical blood vessel suture and one that will serve a useful purpose in cases demanding emergency blood vessel repair.

OBSERVATIONS IN TUBERCULOSIS CLINIC WORK.*

By EDGAR C. HARPER, M. D., Richmond, Va.
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This paper is based on my work as medical director of the State Board of Health county field clinics. I shall later give in detail the results of our clinical examinations and you will no doubt be surprised, if you are unfamiliar with our methods, that we found 1,079 persons really needing the attention of physicians for diseases entirely unrelated to tuberculosis, and still more surprised at how few of these sick persons were receiving a physician's care. We make every effort possible, with our financial limitations, to fine-tooth-comb the communities in which we hold clinics with the one outstanding thought in our minds to find those who show symptoms of possible tuberculosis. Consequently, of course, the records of our investigations disclose an unusually large percentage of tuberculosis as compared with the average of such percentages; but we, like you, are surprised that our examinations disclosed so many other diseases.

METHODS OF PROCEDURE

PRELIMINARY ORGANIZATION: Since we have not as yet been able to hold annual clinics in all of our counties, I do not think it will be uninteresting to you for me hastily to review our method of procedure. This routine has been followed in each of the twenty-six counties for which we have tabulated the records of our clinics held during the summer just past. The director of the bureau of tuberculosis education, or her assistant, visits the county, makes public talks, interviews prominent citizens, and arranges with local committees for examination points, placing these in each magisterial district, so as to make the clinic accessible to as many people as possible. One week before the clinic, the field nurse arrives in the county, and at once calls on all

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

regular medical practitioners. She carries to the doctors lists of contacts secured by our office records of tuberculosis deaths, cases registered with us by the local physicians, and cases reported to us through our laboratories. She asks permission to visit in these homes and secures if possible through the physicians the names of other contacts for visiting. All families in which there has been a death in the past two years are visited and members of the family urged to attend the clinic. The importance of this work will be shown later by our records of high percentages of positive cases among the contacts examined. Posters advertising the clinic are placed throughout the county in conspicuous places and dodgers are distributed telling of dates and places where clinics will be held. Ministers are asked to co-operate by announcements in churches, and the press and moving picture houses do their part to bring the clinic to the attention of the public.

Method of Examination: To facilitate and accelerate the examinations a carefully prepared history is taken by a historian who is specially instructed before the clinic. We have one permanent historian, but for the second unit the nurse gives preliminary instructions to some local persons who may be relied upon to do the work of historian. The history sheet is brought to the examining room with the patient. On it are listed family and contact history, past illnesses, hemoptysis, usual and present weight, pulse, temperature, and respiration, together with a general account of the onset of present illness.

In the examination itself, the following routine has been established. The patient is stripped to the waist and a thin examining cape thrown over the shoulders. He sits on a revolving stool which has been placed in a good light and faces the examiner. The time honored procedure of inspection, palpation, percussion, and auscultation are begun in the following manner:

Inspection: The patient is instructed to assume a natural position not too rigid nor too slouching. He is closely inspected for all disease signs; such as faulty nutrition of skin and subcutaneous tissue; presence of eruptions; old scars, or abnormal pulsations; size, development, and contours, degree of expansion, muscular spasm and retractions in the chest; rate of respirations, and so on. A great deal can be learned from these simple procedures; for pathology in lung or pleura rarely fails to leave its telltale marks on the thoracic cage. Thus an early lesion at one apex will give you muscular spasm in sterno-cleido-mastoid, the scaleni, pectoralis, and trapezius. These muscles will be found prominent; larger and firmer than muscles on the opposite side. This, combined with lagging at apex or base on affected side, along with unilateral deepening of supra- and infra-clavicular spaces would suggest the location of the lesion. Disturbances of nutrition and sympathetic nervous system, as seen in curving nails, unequal dilation of pupil and flushing of cheek on affected side, are encountered sufficiently often to be of much diagnostic assistance.

Palpation is combined with inspection to confirm muscular spasm, locate apex of heart and discover enlarged glands or areas of tenderness and voice fremitus.

Percussion is relied on to outline pleural effusion and solid organs. Percussion of apex should always be carried from below upward, as we are more apt to detect impaired notes in going from normal to abnormal, than *vice versa.*

Auscultation will continue to be our most reliable, but most difficult method of physical diagnosis in chest work. Often the evidence of an early lesion may be very slight and escape detection. The earliest breath changes are caused by the narrowing or roughening of terminal bronchioles and is termed granular; this, with a prolongation of expiration or a slight enfeeblement on one side, are true breath changes of early apical tuberculosis. Increased whispered voice will usually be heard over an area of infiltration, but is not as reliable as changes in breath sounds.

Rales come later in disease and may be brought out by listening to inspiration following an expiratory cough. It is as true now as it was in Osler's day that "one swallow does not make a summer," but one persistent crepitant rale above the clavicle makes pulmonary tuberculosis; although we may as well admit that if we wait for rales we have in many cases allowed our patient to pass into the moderately advanced stages of the disease and have thereby decreased his chances of recovery. Too much dependence must not be placed on the presence of rales; for out of our 937 positive cases, 527 or fifty-six per cent were without rales. Undue importance has been given to

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negative sputum by both profession and laity. Our field methods do not enable us to secure complete records of sputum examinations on clinic patients. Records of Phipps Institute, as tabulated by Fishberg, show that from sixty to seventy-five per cent of early cases show negative sputum even after exhaustive study and repeated tests. What wonder then that a single examination so often shows a negative report, and unjustifiably thus quiets the patient's fears! A positive sputum clinches our diagnosis, but a negative one does not deny tuberculosis. Of 3,293 sputum examinations made at the State Laboratory during two years, only 597 or eighteen per cent were positive, yet all these cases were suspected by competent physicians.

We must bear in mind always that true diagnosis of incipient tuberculosis can be made only by careful consideration of the facts revealed in the history, and proper estimation of slight deviations from normal as brought out by inspection, palpation, percussion, and auscultation. So in our clinical work, we give due consideration to each factor.

Follow-up Methods: Continuing the discussion of our clinical organization, we consider that our problem only begins when a positive diagnosis has been made. The aim of the post-clinic work is to get under medical supervision all patients who need the doctor's care. This work is begun by giving the family doctor a report of the chest findings, the stage of disease, and the associated diseases. The report is made out by the clinician for each patient at the time of the clinic. The nurse carries it to the doctor to seek his advice and secure his permission to visit the patient. No medicinal treatment is ever recommended, but the patient is advised to keep in close touch with the family doctor if he is to take the cure at home or pending admission to the sanatorium. The clinician recommends to each positive or suspicious case that he shall at once adopt the hygienic and dietetic mode of life which is standardized under the name of "the cure." Beyond this our clinicians do not go. I desire to state emphatically that I believe physicians should send every early tuberculous patient to a sanatorium. There is as much need to send early tuberculosis for sanatorium treatment, if we consider the patient's welfare, as there is to send the early case of appendicitis for observation to a surgical hospital. The objects of sanatorium treatment are two-fold: first, to teach the patient to get well and to stay well; second, to teach him to protect others. My observation, extending over several years of sanatorium and private practice, leads me to believe that one month of sanatorium treatment is worth six months of such home treatment as is possible in the average rural home. Tuberculosis is no respecter of persons, but a large percentage of our patients are from the poorer classes, many of them not able to pay the small monthly rate at our sanatoria. If we can secure for these patients, through their own efforts or that of philanthropic persons or charitable agencies, sanatorium treatment, we feel that we have done the best thing possible alike for the patient and the community.

General Observations on Findings

General Analysis: An analysis of our records from the standpoint of sick persons, with and without medical attendance, shows startlingly serious conditions among our people. We have tabulated 3,237 case histories and find that among our applicants 2,017 had a diagnosis of some definite pathological condition. Of these 2,017, only 938 had tuberculous lesions and 1,079, while negative to tuberculosis, were found with other definite diseases. Of our total of 2,017 sick persons, only 410 reported themselves as "under a doctor's care." Allowing for inaccuracies of statement through misunderstanding of our historians' questions, it must yet be conceded that the situation is most alarming.

Percentage of Positive: It is of interest to note that twenty-nine per cent of all our clinic patients are positive cases of tuberculosis. Comparison of this figure with the carefully selected patients of an old well-established tuberculosis clinic in Richmond shows that they found only nineteen per cent more positive cases than we did. Considering the fact that many of our clinics are held in counties where there are no public health nurses or active public health departments, these figures would tend to show the beneficial results of general education and periodic physical examinations as measures to prevent sickness. Of our 2,349 white applicants, thirty-two per cent were positive cases of tuberculosis, while of 902 colored applicants, only twenty per cent showed disease. These are grave figures when we remember that the death rate amongst negroes is practically two and one-half times as great as it is among the whites, and that many of these

people serve as nurses and cooks in the homes of the white. The difference in attendance is partly explained by a difference in the attitude toward the disease. The white people who attended clinics were anxious to discover their true conditions; the negroes wished to have their assurance of well-being justified. The policy of many insurance companies may have influenced these figures for, as you know, they refuse to pay sick benefits and death claims to those sick or dying of tuberculosis.

Although the clinic is primarily for adults, 902 children came for examination, and eighteen per cent showed tuberculous disease. We believe that infection usually takes place in childhood, and that a higher mortality among children would be recorded were it not that the disease progresses so rapidly to a fatal ending for the very young. The scarcity of definite clinical manifestations also renders diagnosis more difficult than it is in adults. All children who are underweight or who fail to gain weight, or who tire easily, with pallor, malnutrition and debility, are potentially tuberculous and should be treated as such unless there is marked improvement after other defects have been removed.

Results in Contact Work: Discarding the influence of heredity on tuberculosis, but believing fully in the communication of the infection from the careless sick to the well, we have spared no effort to get in touch with the contacts and bring them out for examination. Our approach was made possible through lists of all types of patients appearing on our office records which, placed in the hands of our nurses, made with the co-operation of local physicians an excellent basis for thorough contact visiting. Our efforts to secure contacts for examination have been partially rewarded, for our tabulation shows thirty-five per cent contacts among our 3,237 applicants. The large number of contacts among the applicants is in part due to the excellent work of our field nurses, and in part to the long duration of the educational campaign. We believe that annual examinations for all contacts will be an essential factor in the elimination of the disease.

Family History: Every possible form of persuasion short of coercion was used by our nurses in families with positive histories, in order to secure their attendance at clinics. Few people are at all trained in methods of preventing the spread of communicable disease, and we were not surprised to find that fifty-six per cent of our tuberculous patients showed positive family history.

Other Disease Findings

As I have said, 2,017 of our applicants had a definite diagnosis of a pathological condition, and only 410 of all our applicants for examinations were in the hands of doctors. The findings in diseases other than tuberculosis provide much interesting data. For example, we attribute a great deal of the poor health, malnutrition, inability to progress at school, rheumatic, cardiac, and eye and middle ear troubles in children to diseased tonsils and to adenoids, yet our tabulation reveals that 445 of our children are handicapped by this one ailment, thirty-five more than the 410 cases in hands of practitioners. There are exceedingly few organic conditions that are not made more bearable by a sympathetic advice of a respected family doctor, even though his medicinal aid may be of little value. The succeeding diseases found through our examinations all tend to grow progressively worse rather than to become spontaneously relieved. In the list we find:

Tonsils and Adenoids	445	Malnutrition	109
Cardiac	175	Gastric	35
Chronic Appendix	4	Pleurisy	27
Bronchitis	55	Nephritis	9
Hyperthyroid	68	Goitre	25
Cervical Adenitis	35		

If we use our 410 patients under medical supervision as our tuberculous group, we still leave fifty-seven per cent of our tuberculosis patients without medical care, along with the 175 cardiacs, the 445 cases of tonsils and adenoids, and all the other various diseases, which were among our findings. Further, it is a deplorable fact that many of our tuberculous cases are among the clientele of the irregular practitioners who encourage them mentally and who massage their spines industriously as long as their money holds out, and then turn them over to the county in an incurable stage.

Variety in Symptoms of Onset

An examination of our tabulation for modes of onset reported by our patients gives many useful diagnostic hints. No disease, with the possible exception of syphilis, has a wider range of onset or greater variation in symptoms than tuberculosis. Yet, upon definite symptoms and slight physical findings, an early diagnosis can be made, to the credit of the diagnostician and to the great benefit of the patient.

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Remember that an unexplained loss of weight, undue fatigue upon slight exertion, with loss of strength and energy, combined with rapid pulse and temperature of 99° F. or over for afternoon or evening, with or without cough or expectoration, mean tuberculosis in about ninety per cent of the cases.

The manner of onset may be indefinite and it is evident that our classification overlaps; but it was to be expected that each patient would show more than one symptom in the onset of disease.

For convenience in discussing our very varied histories of onset, we have grouped them under the following heads: first, insidious; second, catarrhal; third, hemorraghic; and fourth, pleuritic.

Insidious: A prominent group of symptoms in early tuberculosis is caused by the action of circulating toxins on the central nervous system and in the glands of internal secretion. Among these symptoms are lack of endurance, malaise, loss of strength, anorexia, indigestion, rapid pulse, temperature and anemia. These we class together under the head of insidious and find that ninety-five per cent of our group of positive cases show this onset.

Catarrhal: We have been impressed by the large number of cases dating their illness back to the influenza epidemic, or to subsequent attacks of so-called colds or grip. We have classed them, along with colds, pneumonia, cough and expectoration, under the catarrhal onset, and find that forty-five per cent of our positive cases give at one time or another this history.

Hemorraghic: Although a large percentage of patients—245 or twenty-five per cent of our total positive cases—give a history of blood spitting, at some time during their illness, this is not a frequent mode of onset; but it is a symptom of greatest importance. We are, of course, eliminating from our consideration hemorrhages caused by lesions of the mitral valve. The expectoration of a drachm or more of blood in temperate climates is due to tuberculosis, according to Cabot. Unfortunately, many patients progress to a hopelessly advanced stage, lulled by the moral cowardice of their medical adviser, into the comforting assurance that the bleeding is from the nose, throat, or stomach.

Pleuritic: The wide use of the X-ray in chest work during the last few years has made us appreciate the fact that pleurisy, wet or dry, is a precursor of later active trouble. Thirty per cent of our 938 positive cases gave a pleuritic history. Referred pleuritic pain to the shoulder joint is often found in unilateral apical lesions. So frequently has this occurred that we wish to urge a thorough chest examination before such pains are classed as neuritis or rheumatism.

I do not mean to imply that our patients have given a history of onsets which fall exactly within our classifications, but that we have been able to group even varied onsets roughly into these classes. Frequently the onset is so indefinite that we must look into the past history for further light. What effect do one or more attacks of pneumonia, influenza, or pleurisy have upon the lung? It is inconceivable that the delicate pulmonary tissue could harbor the virulent organisms of these diseases without having its resistance to tuberculosis impaired. Many acute, "flare ups" of an old reenactivated pulmonary tuberculosis, in individuals not suspected of having the disease, are diagnosed as pneumonia, influenza, or some allied trouble, without any discredit to the doctor, for the signs and symptoms may be identical. What we wish to call attention to is the bearing upon tuberculosis of recurrent attacks of acute pulmonary disease. We cite figures to substantiate our belief in their importance.

Twenty-eight per cent of our cases with positive tuberculosis give a history of pneumonia, while only sixteen per cent of our negative cases give such history. In pleurisy we expected the percentages to differ more widely, and we find such history in twenty-seven per cent of positive tuberculosis, and in only seven per cent of the negative cases. "Wet" pleurisy is generally believed among tuberculosis specialists always to be of tuberculous origin, but we do not believe this to be true of "dry." After the influenza epidemic it was to be expected that a large percentage of all applicants would give a history of that disease. We find it present in the history of seventy-four per cent of the positive cases of tuberculosis, and in sixty-two per cent of the patients who showed no tuberculous lesion.

The importance of an early diagnosis is seen from a casual glance at the following table:

	Active	Quiescent	Arrested	Total
Minimal	150	69	138	357
Mod. Advanced	121	15	13	149
Far Advanced	52	2	1	55
	323	86	152	561

It is significant that out of 357 early cases, 138 or thirty-nine per cent should have become arrested without treatment; whereas only one case out of fifty-five far advanced, less than two per cent, showed as arrested. Reports from Catawba Sanatorium, October 1, 1921, to September 30, 1923, show following comparisons:

	Improved	Unimproved	Dead (whole fractions)
Minimal	92%	8%	0%
Mod. Advanced	89%	9%	2%
Far Advanced	60%	26%	14%

Chances for minimal cases to improve under treatment are nearly fifty per cent better than for far advanced cases, and are nearly three times as great under treatment for minimal as they are under no treatment.

Conclusions

We feel that our educational work with negroes has not been so successful as with whites. Although the State provides a 120 bed sanatorium at Burkeville—at which equally good results are obtained as in the white sanatoria—we have given practically half our clinic time to colored people, and we find that the ancient superstition of baneful effects of night air, racial susceptibility to tuberculosis, poor living conditions and indifference to health matters render them dangerous foci of infection upon which we are preparing to concentrate an intensive educational campaign. We feel that physicians in their routine practice can be of great aid in educating the negro out of the fear of a positive diagnosis.

We wish to thank the many doctors who have cheerfully given their time and support to the clinics. We have no desire or thought of supplanting the local physician, for he is the backbone of society's efforts to eradicate disease. We function only as a diagnostic adjunct hoping thereby to give timely advice to a very unfortunate class of people. Our aim is to get the patient under supervision of his doctor, to impress upon him the importance of yearly examinations, and to admonish him of the first danger signals of tuberculosis.

Finally, I wish to emphasize the importance to you of history and symptoms in early diagnosis. Remember always that they precede physical findings by days or months, and that physical manifestions may be very slight or entirely absent, although disease is present. Fifty per cent of positive cases do not show rales, and one of the most difficult procedures of physical diagnosis is the detection of pathological variations in breath sounds. These are lessons I have had impressed upon me by study of 3,000 chest examinations.

State Office Building.

Discussion.

Dr. B. B. Bagby, *Richmond*: Twenty-two years ago I spit blood from my lung and went to New Mexico. Since that time I have been thoroughly impressed with the fact that all cases should have some sanatorium treatment to teach them to protect others. How can we get these people to go to the sanatoria? I used to tell them that they should go to be cured themselves, and I had very little success. For the last three years I have been telling them to go to learn not to give the disease to others, and I have had much more success.

Last year I saw an old man whose son and wife had died of tuberculosis. The old man had contracted the disease in 1918. Preachers, doctors, nurses, all had tried without success to persuade him to enter a sanatorium. I found him and his two children sleeping in one bed. He was spitting germs everywhere and doing everything possible to infect everyone. He had been a reprobate, gambler, everything he should not be, and no one cared if he got well or not. I felt this way about him myself, but there were the children. I went to him and said, "My people are willing to bet you two months' expenses in a sanatorium that they can teach you to protect your children from tuberculosis. I do not believe that they can cure you, but I do believe they can save your children. They are willing to bet on it."

Because of his gambling spirit, and because he wanted to save the children whom he had promised his wife never to desert and whom he loved, the old man called me back in two or three days and said that, to save his children, not to save himself, he would go.

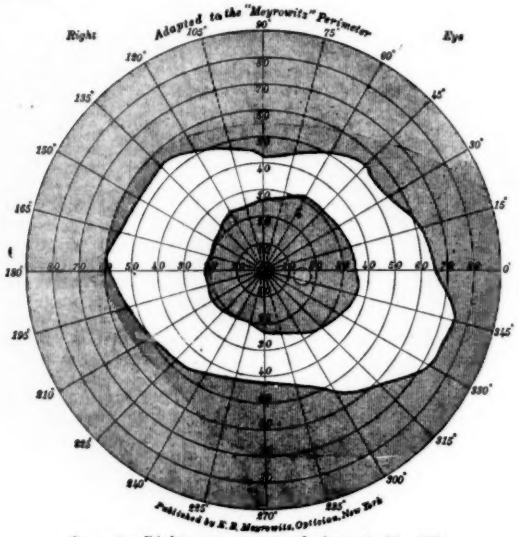
Ask these cases to go to a sanatorium, not for their own good but for the good of humanity, and you will succeed much oftener.

TOXIC BLINDNESS: REPORT OF TWO CASES.

By CLARENCE PORTER JONES, M. D., F. A. C. S.,
Newport News, Va.

It is quite commonly conceded by physicians that blindness occurring in apparently healthy persons may be toxic, also, that there is a post-bulbar œdema of the optic nerve which may ensue for a number of days before a well-defined neuritis becomes fixed. The literature for the past eight or ten years mentions scattered cases here and there. However, physicians have not, as a rule, given general recognition to the possibility of diseased nasal sinuses, as well as dental sepsis, as a frequent cause of such blindness. Galtung[1] reports a case of toxic blindness in a man 45 years old with peripapillary and pericentral scotoma caused by sphenoid sinusitis. Heuser[2] and

Haren report 3 cases, adding that recovery was rapid upon opening the sphenoid sinuses. Van de Hoeve[3] reports 8 cases traced to sphenoid and posterior ethmoid disease. Velter[4] and Liebault report a case caused by a sphenoid polyp. Valude[5] and Chantin report a case of bilateral blindness due to sphenoid sinusitis.

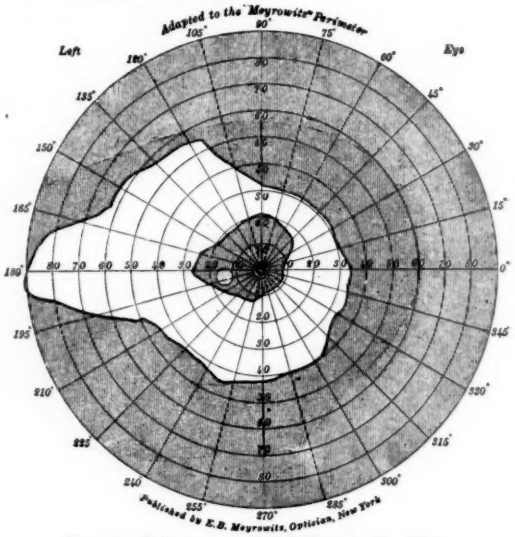


Case 1.—Right eye, measured August 23, 1924.

Thompson[6] says "The most striking and characteristic type of this class of cases manifests itself by a partial central scotoma of about 20° radius (concentric), with color blindness in the scotoma and not the slightest appearance of optic nerve disease discoverable by the ophthalmoscope." * * * "Of course, total atrophy of the optic nerve follows if the trouble is not promptly relieved at this stage."

"The diagnosis is easily made in the most characteristic form of the disease, and yet general tests, Wassermann, teeth, tonsils, intestines, etc., should not be omitted. If the case be seen when the vision is very far gone, the diagnosis must rest on the absence of fundus signs, the absence of visual disturbances in the fellow eye, and the absence of the other causation." He also reports 5 cases caused by sphenoid and ethmoid sinusitis, also some dental sepsis, in one of the cases. It is so apparent to every physician nowadays that apical teeth abscesses do cause toxic blindness that we will not give any of the multitudinous references on the subject.

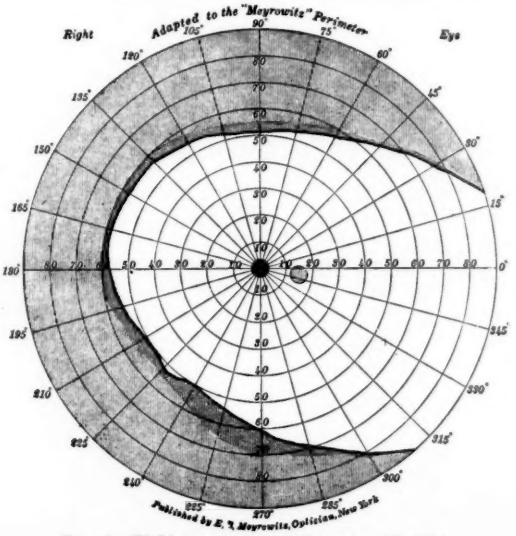
The two cases I herewith report will show, when taken early and prompt treatment given, good results may be expected in toxic blindness due to focal infection.



Case 1.—Left eye, measured August 23, 1924.

Case I. The patient, a truck farmer, 50 years old, was seen first on August 23, 1924. He consulted the writer for blindness in both eyes which he first noticed on August 10th.

History.—He has had the usual diseases of childhood—measles, chicken-pox, and whooping cough. He has suffered no other illness of any importance except four months prior



Case 1.—Right eye, measured November 17, 1924.

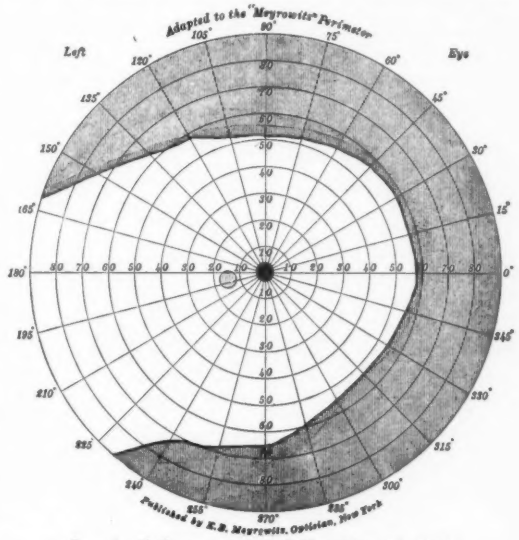
to this time he had facial neuralgia and stiffness in the muscles of the right arm and leg, which was promptly relieved by extraction of all his teeth under general anæsthesia (all teeth were abscessed). His parents were healthy persons and lived to mature age. He has three brothers and two sisters who are in good health. Two brothers are dead; one died from tuberculosis, and the other from alcoholism. He has two grown healthy children; none dead.

Physical Examination.—The patient was a well-developed man, 5 feet 6 inches high, weighing 156 pounds. Complexion the usual ruddy sunburn of the active field worker. The skin over the entire body was exceptionally free from any mark or blemish. His heart and lungs were normal; there were no palpable glands, and no evidence of nervous disorder. Physical examination was otherwise negative except for the eye condition. There was no evidence of oral sepsis, firm healthy gums, small rudimentary tonsils without any suspicion of infection. Ophthalmoscopic examination revealed no pathology except the nerve heads were somewhat paler than normal. Visual fields measured showed a large central scotoma in each eye. The peripheral fields were somewhat contracted. Central vision was but little better than counting fingers. Intraocular tension was 29 millimeters (McLean). Blood pressure was 163. The nose presented a good appearance, septum thin and rather straight; turbinates seemed healthy and there was no fluid or excessive moisture seen.

Transillumination revealed a cloudy right antrum. After thoroughly shrinking the nasal mucosa and applying suction, a limited amount of fluid was seen in the neighborhood of each sphenoid sinus ostium. The roentgenogram revealed no pathology except a dark right antrum.

Treatment.—On August 24th, each sphenoid sinus was opened and found to contain thin fluid, which was cultured separately. A goodly portion of the anterior wall was removed from each sinus. On August 26th, the patient remarked that his sight was coming back, that he could tell a white man from a negro 20 feet distant. The right antrum was opened and found to contain a cloudy fluid having some odor. This fluid was cultured.

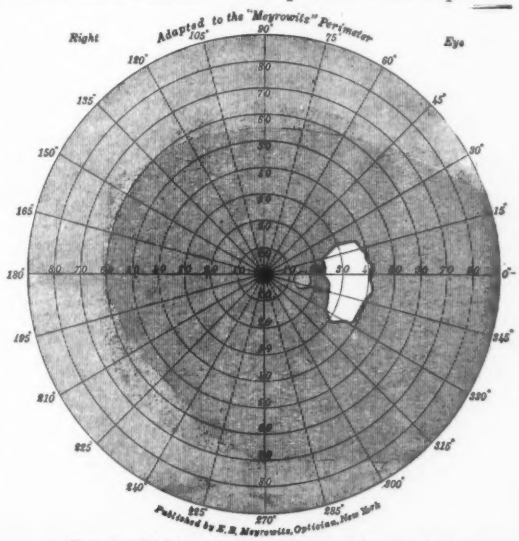
Laboratory Tests. — Blood examination showed haemoglobin was 80 per cent, that it was free from the plasmodium malaria, and was negative to the Wassermann reaction. The



Case 1.—Left eye, measured November 17, 1924.

urine was negative for albumin, sugar and casts, and showed only a few white blood cells. Cultures of each sphenoid sinus fluid and the antrum fluid, taken separately and grown separately, yielded the same organism in pure culture, namely, staphylococcus albus.

The medical treatment was confined to eliminants and tonics. The patient has reported



Case 2.—Right eye, measured September 28, 1924.

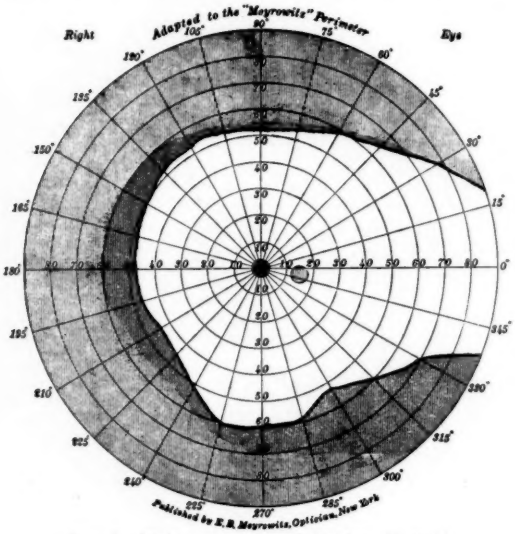
for examination almost daily since his first appearance. His vision measured November 17th: right eye 20/40, left eye 20/30, with no contraction of the peripheric fields. His appetite is good and his general appearance is that of a well person.

Case 2. The patient, a mechanic, 64 years old, was first seen on September 28, 1924. He consulted the writer for blindness in the right eye, which he said was of a few days' duration, perhaps ten days.

History.—He had had various illnesses, also a specific history. The latter condition was most actively treated by an able internist and he has had repeated periodic negative Wassermanns for over 3 years.

He was born in a foreign country and was brought to this country in early childhood; consequently, he had but little knowledge of any of his relatives.

Physical Examination.—The patient was a robust, husky Irishman, 6 feet 1 inch tall and weighed 210 pounds. His complexion was sunburned and ruddy. Heart and lungs were normal. There was nothing found abnormal



Case 2.—Right eye, measured October, 23, 1924.

except two abscessed teeth. The Roentgenogram revealed no pathology other than the teeth. The ophthalmoscope showed nothing except a normal eye-ground. Visual fields measured showed entire right to be dark except one small unaffected spot between middle and inner edge; left normal.

The nose and throat were negative as to any clinical appearance of disease. Blood pressure was 159. Ocular tension was 32 millimeters (McLean) in each.

Treatment.—On September 30th, the teeth indicated were extracted, and an apical abscess was found in each instance. On the next day he remarked on entering the office that there was some vision in his right eye; that he could tell a man from a horse. Six days later vision in the right eye was 20/70. October 23rd, vision in the right eye was 20/30,—the same as the fellow eye. Vision was tested last on December 9th, with the same result.

Laboratory Tests. — Blood examination showed the hæmoglobin to be 90 per cent, and negative to the Wassermann reaction.

The urine contained a trace of albumin and a few white blood cells. Culture from the teeth proved to be mixed staphylo- and pneumococci.

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SOME FEATURES REGARDING THE CLINICAL COURSE AND TREATMENT OF EPIDERMOID CARCINOMAS OF THE SKIN.

By S. W. BUDD, M. D., Richmond, Va.

Epidermoid carcinomas represent a very large group of tumors that vary in a most remarkable manner as to their clinical course and as to their reaction to treatment. They occur wherever squamous epithelium is found, and their malignancy depends largely on the seat of origin. If they arise from a mucous membrane they are usually more malignant than if they arise from the skin surface, while those found at the muco-cutaneous border occupy a mid-course as to malignancy.

There are two groups of epidermoid carcinomas*—the squamous cell epidermoid carcinoma of the acanthoma which arises from the cells of the Malpighian area and the baso-cell epidermoid carcinoma or rodent ulcer which

*The melanomes and the nevis carcinomas are not discussed in this paper.

arises from the columnar cells of squamous epithelium. In the skin these two groups are easy to recognize, but in epidermoid carcinoma arising from a mucous membrane the two types cannot be separated, but, instead, "the entire mucous membrane is reproduced and invaginated into the deeper structures."

In a general way it is convenient to divide epidermoid carcinomas into a superficial variety or one arising from the skin surface, and a deep variety or one arising from a mucous membrane. The clinical course and the treatment of the superficial and deep epidermoid carcinomas are so different that this division is quite practical. It is the purpose of this paper to present some of the features both as regards the clinical course and the treatment of epidermoid carcinomas of the skin.

Practically all epidermoid carcinomas pass through a precancerous stage which may be quite short or extend over a long period of time, possibly fifty or more years. During this precancerous or quiescent stage, they present the histologic appearance of malignancy, yet the clinical course is not in accord with the histologic picture. Many keratotic spots

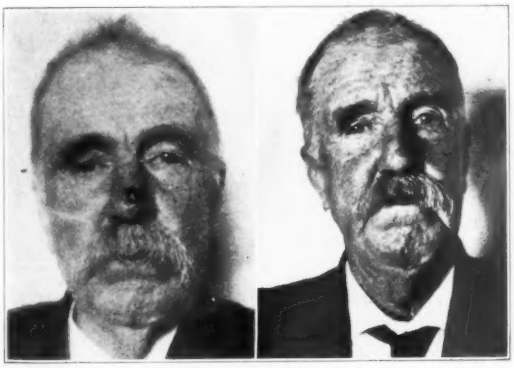

Fig. 1.—Acanthoma arising from a keratotic spot. Early ulceration. One radium treatment.

or papillomatous growths, regarded as malignant, are in reality benign, and forever will remain benign. In fact, only a small percentage of these so-called precancerous lesions go beyond the threshold of benignancy. If, however, in patients past forty these precancerous lesions show a tendency to scab formation or increase in size, and if simple non-irritative remedies will not remove them, they should be looked upon as early malignancy and should be treated accordingly.

Epidermoid carcinomas present a "diversity of origin, and of course a variety of microscopic and macroscopic pictures." It is not always possible to separate the acanthoma from the rodent ulcer macroscopically, yet histologically such a separation is easily accomplished. In the treatment of an epidermoid carcinoma it is important to know if we are dealing with a rodent ulcer or an acanthoma. We seldom excise a piece of tissue to determine the nature of the growth, yet in papillomatous or elevated growths this procedure can be done without difficulty, and if the zone from which the tissue is removed is treated with a cautery or carbolic acid it can be done with small danger to the patient. In the past year I have made it a rule to excise and study a portion of tissue removed from the growth whenever possible. I have been surprised at the frequency of the acanthoma.

Squamous cell epidermoid carcinomas or acanthomas show two distinct forms of origin: (1) a papilloma which in its early stage is freely movable; (2) a keratotic spot which indurates and infiltrates quite early. As the acanthoma grows, ulceration begins and the lesion then becomes a rapidly extending ulcer with raised indurated edges and a base or crater that presents a granular appearance. In rare instances an ulcer may not form until very late in the course of the disease. This type of tumor presents a cauliflower or mushroomlike appearance, but sooner or later the tumor is replaced by an ulcer.

According to Ewing, the acanthoma differs macroscopically from the rodent ulcer "chiefly in its early papillary appearance, more rapid lateral extension and more destructive course." This distinction is rather difficult in its application to an individual case, yet I have no doubt that in dealing with a large number of cases we would find Ewing's statement to be correct.

Squamous cell epidermoid carcinomas are found at the muco-cutaneous border (chiefly lip, glans, penis) and on the face, scalp and extremities. Irritation plays a very important role in their production. Tobacco, soot, paraffin, heat, chronic ulcers, scars, X-ray exposures, are some of the irritants to which acanthomas owe their origin. They tend to maintain the histologic appearance of the skin no matter where they are found. It is not unusual to find an acanthoma in the liver or lymph node showing an attempt to reproduce skin structures. At the edge of an ulcer where resistance

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is low, the attempt to reproduce structures resembling normal skin is limited. In this region a more vegetative type of cell is seen. Hyper-chromatic nuclei and mitoses are much in evidence, although in this zone we may find pearl formation, intra-cellular fibrils and other evidence of differentiation.

With a low resistance on the part of a patient the malignancy of a tumor may enhance, just as the virulence of an organism may enhance by the passage through a susceptible animal. The resistance on the part of a patient controls in a measure the histologic picture of malignant growth. It is true, as Broders intimates, that in lip epidermoid carcinomas the malignancy varies with the amount of hornification, yet it is equally true that hornification depends largely on the resistance of the individual. At the edge of an acanthoma we find slight evidence of hornification, yet in the crater of the same ulcer where fibrosis, small round cell infiltration, giant cell formation and other evidences of defense on the part of the tissue are seen, pearl formation and hornification may be extensive.

If the work of Broders is accept,ed it will be necessary in the future not only to separate the rodent ulcer from the acanthoma, but also

Fig. 2.—Acanthoma. Rapid ulceration. Three radium treatments.

Fig. 3.—Acanthoma, cauliflower variety. Late ulceration. Three radium treatments.

to type the acanthoma in order to prognosticate before treatment is instituted. This can only be done by a microscopic examination.

Squamous cell epidermoid carcinomas are not very malignant; they metastasize late, usually after the patient has been weakened by an ulcer of long standing. Yet it is not uncommon to find in them active growth from the beginning, and especially is this the case in those arising from lupus scars. Askihara collected 122 cases of acanthomas arising from lupus scars, and of these 122 cases only nine recovered. I have seen three cases of squamous cell epidermoid carcinomas developing upon lupus scars and two of them died. One case is still under treatment.

Baso-cell epidermoid carcinomas or rodent ulcers are growths that develop from the columnar layer of the skin. They occur on the face, scalp, ear and nose, and most often at the muco-cutaneous borders (chiefly eye). Rodent ulcers are usually seen in persons past middle life but occasionally they may be found in young people. It first appears as a flat papule or a smooth wart-like tumor. There is at first little tendency to growth or ulceration, but after a period of quiescence and usually inadequate medical treatment ulceration and spread takes place. One of the most noticeable traits of a rodent ulcer is its attempt to remain superficial. The base or crater of the ulcer produces an enormous amount of dense, fibrous tissue which tends to limit the disease. The growing edge of the ulcer is slightly elevated, but not so marked as in the case of an acanthoma. It is not an unusual finding to see the base of a rodent ulcer heal and the edge show active growth. The ulcer, if the tissues lend little resistance, "may extend through the muscles and strip all tissue down to the bone." In advanced cases, an eye, nose or an ear my be lost in the process. The periosteum offers a barrier to invasion, but this in late stages of the disease may be involved. Erosion of a large vessel may result in death, or death may ensue from cachexia, suppuration or mental depression.

The tumor cells of a rodent ulcer resemble the basal cells of the squamous epithelium.

Flat and pavement cells, hornification, prickly cells, and pearl formation are usually absent; in fact, the cells of a rodent ulcer attempt to retain their embryonal character throughout.

Reactive changes produced in tissues by acanthomas and rodent ulcers may be extensive. Rounds cells, lymphocytes, plasma cells, and giant cells are seen about the lesion, but if for any reason the resistance of the patient should become lowered, the reactive changes are diminished. It is not unusual to see extensive fibrosis and calcification which may materially hinder the progress of an epidermoid carcinoma, and in rare instances may lead to a spontaneous healing of it. After an epidermoid carcinoma has been present for some time, the ulcer becomes secondarily infected with streptococci and other pus forming organisms which may influence the course of the disease. The secretion from an epidermoid carcinoma is first watery, later purulent, and still later, if erosion is a prominent feature, an admixture of blood and pus.

Epidermoid carcinomas are not particularly malignant; in fact, it is a rare occurrence for this disease to invade the surrounding lymph nodes or to present widespread metastases. In treating an epidermoid carcinoma it should always be borne in mind that the condition is most always a local disease and one that responds to treatment. Yet, if the proper treatment or the correct dosage is not given, an epidermoid carcinoma can be converted into a very malignant growth with widespread metastases.

In the early stages of an acanthoma or a rodent ulcer a number of remedies are effective; among them are escharotics, cauterization, excision, X-ray and radium. Time will not permit a discussion of the merits of the several forms of treatment, but at the same time I cannot pass this subject without a word of warning as to the danger accompanying the treatment of epidermoid carcinomas with escharotics. Irritative and insufficient treatment in all forms is contra-indicated and very dangerous to these growths. I have seen some wonderful scars resulting from the use of escharotics just as good as can be obtained by the other methods of treatment, but the question always arises in my mind if the disease treated was an active growing tumor or one that should be classed amongst the benign or precancerous conditions. I have seen some pitiful cases resulting from the prolonged and injudicious treatment with these remedies.

In the treatment of epidermoid carcinomas of the skin with radium several factors have to be constantly before us, namely:

1. Is the disease an acanthoma or a rodent ulcer?
2. Is the disease a papilloma or an ulcer?
3. Is the ulcer attached to bone?
4. Did the disease arise from a lupus scar?
5. Is infection the predominating element?

If the disease is an acanthoma it will require a great deal more radium than if it is a rodent ulcer. The quantity of radium used in the treatment of a tumor varies directly with the differentiation seen in the cells of the growth. It is very important then to be able to recognize the different types of acanthomas and the difference between the acanthoma and the rodent ulcer, even if a microscopic examination has to be resorted to as a mode of diagnosis.

If the disease is a papilloma it can best be treated by emanation seeds or by radium needles imbedded in the growth, usually at the skin surface and parallel to the skin. A cautery may be employed to remove the growth lying above the skin, and this is followed by an application of radium in the form of a plaque to the base of the papilloma.

Fig. 4.—Rodent ulcer. Three radium treatments.

In a superficial ulcer with a slight elevation of the edges, the treatment can be done with a plaque, but if the edges are greatly indurated or elevated the treatment should be that of a papilloma. In other words, emanations, radium needles and cautery to the raised edges, and a plaque to the flat portion.

If the growth is attached to the bony structure, it is difficult to decide what form of

radium therapy is to be employed; probably all will fail. Near the edge of the growth, if it be possible to bury radium emanations or radium needles, the spread of the condition may be stopped. In the crater of the ulcer where the bone has been invaded, the gamma ray should be used in rather large doses.

If the disease rises on a lupus scar, it is extremely resistant to radium, especially if the disease shows marked activity before treatment is started. I have had two such cases and both died. I have one case that is apparently being held in check by radium. The disease, however, was caught in its incipiency and had not invaded the underlying tissues to any great extent when the patient presented himself to me for treatment.

If an epidermoid carcinoma is located on the ear, and the cartilage has been invaded by the disease, it is not well to make too many radium applications. If one or two treatments fail to remove the growth or to arrest the condition, the patient should be turned over to a surgeon for radical excision. Even in my short term as a radiologist I have seen the fallacy of too many radium applications in these cases.

Fig. 5.—Rodent ulcer showing a tendency to heal spontaneously. Two radium treatments.

If an active infection exists, a preliminary course of medical treatment with non-irritating antiseptics should be given before radium treatment is instituted. A week or two of frequent washings and wet dressings with Ochsner's solution or chloral solution will sometimes prevent the disagreeable after-effects of radium therapy, such as cellulitis or erysipiloid condition.

Radium is indicated in small epidermoid carcinomas of the face as the cosmetic effect of the treatment is certainly equal to and perhaps superior to all forms of treatment. In epidermoid carcinomas about the eyelids, where a small amount of scar tissue will produce a rather marked alteration of the features of the patient, or in epidermoid carcinomas occurring in the folds of the face or in the region of the external nares, radium therapy is especially desirable.

In conclusion, I would like to emphasize the following points:

1. The early diagnosis and radical treatment of epidermoid carcinomas.

2. The importance of separating the acanthoma from the rodent ulcer. If possible, this should be done in all cases even if a microscopic examination has to be resorted to.

3. The danger of treating an infected epidermoid carcinoma without preliminary medical treatment.

4. The malignancy of an acanthoma arising from lupus scar.

1000 *West Grace Street.*

WHY ARE SO MANY PHYSICIANS SUCH EASY MARKS FOR FAKE PROMOTERS?*

By JAMES M. MILLER, M. D., Crockett, Va.

This paper, as you see from its title, is based on the assumption that many physicians fall easily for the schemes of fake promoters. This may, or may not be true, but so far as this paper is concerned, it makes no difference, as it is by no means presented as the finished product, but simply to provoke discussion. And, as it is said that "An honest confession is good for the soul," I will also state that it is based not upon observation alone, but experience, as well.

There are several reasons that could be presented, to account for the easy manner in which we succumb to the alluring statements of this class of gentry, but we will consider only two. The first, I mention but to condemn, the erroneous one given by the laity, namely, "easy come, easy go." In other words, the physician makes his money so easily, that, as is usual in such cases, it slips through his fingers just as easily. We physicians know, that there is absolutely nothing at all to this statement, that if preparation is considered, we, with the exception of the ministry, are perhaps the poorest paid profession in the world. The laity forgets that we have spent

*Read at the meeting of the Southwestern Virginia Medical Society, in Marion, September 11 and 12, 1924.

from six to eight of the very best years of our lives, and as many thousands of dollars, in mere preparation for the practice of medicine.

The second reason I present to account for our easy fall is one that I have never seen, nor heard mentioned, so perhaps it will not bear the light of investigation. It is because of the manner in which we are mentally trained, especially before, but to a certain extent also after graduation: that is, we have too much of our thinking done for us, too much of it is second hand. While this is more or less true of all professions, I believe it applies in greater degree to ours than to others. Let us consider briefly some of the branches we study. Take histology for instance. In this we are told exactly what to look for, how to look for it, and how to recognize it when we find it. In anatomy, which might more or less aptly be called the geography of the human body, if we wish to trace a certain structure, be it nerve, blood vessel, muscle, or what not, we are told to the minutest detail by what it is bounded on the north, south, east and west. Coming a little higher, to the study of the practice of medicine, we are told that a certain set of symptoms, related in a certain way, spells the name of a certain disease, in other words, makes our diagnosis for us. Fortunately for us, however, there are very few cases that present the classical symptoms of the text-book, hence we are compelled to exercise more or less individual, independent thought in arriving at a correct diagnosis. After our diagnosis is made, our text-book kindly outlines a complete treatment. Thus we see that the study of medicine is in great part a matter of routine, of following without question the beaten path made by our predecessors. Most of us are so constituted by nature, in other words so lazy, that we are content to follow the line of least resistance, and, whenever possible let the other fellow do our thinking for us. Fortunately though, there are always a few who are not satis6ed with this sort of thing, and accept the conclusions of no one, unless they can see the reasons therefor. These are the ones who add to the sum total of our medical knowledge.

Not only does this sort of training accompany us through school and hospital days, but we cannot get entirely away from it, even after graduation. Soon after we commence practice, we begin to receive literature from the various pharmaceutical houses, describing in most glowing terms their recent products. Soon this shower of mail becomes a veritable deluge, all but drowning us each morning in its great volume. Do not understand me as condemning these houses, for I am not. They do a great work, often introducing a preparation which is pure gold. Following close upon this descriptive literature is the detail man, usually a very suave, genteel kind of fellow, who is prone to compliment us upon everything imaginable, and perhaps some that are not. After jollying us for a longer or shorter time he comes to the object of his visit. He asks us, in a more or less casual sort of way, if we have been using a certain preparation. If we have the courage to say "no," we see a very pained and pitying expression assume form upon his countenance. We see at a glance that he is indeed very, very sorry for us, and, as the principal excuse for our existence is the relief of suffering whenever possible, we resolve then and there, if we are dispensing physicians, to relieve him by giving him a substantial order for this preparation. Having done this, we lean back with a feeling of contentment, of satisfaction for having relieved his distress, and having made a fellow-being happy. Strange to say though, this feeling does not last long, as we are soon convinced by this gentleman that his house has many products, just as efficacious in their field of usefulness as is this prepartion in its field. The result is, that when this gentleman bids us adieu, he has our order for quite an amount of high priced specialties which we do not want, many of which we probably will not use, and some of which in five years will have been forgotten.

Usually it is not long after this until other gentlemen begin to call upon us, gentlemen a little more suave, a little more polite, and a little more profuse in their congratulations and flatteries than were their predecessors. While our former callers were interested principally in our success as practitioners, we soon learn that these later callers are interested wholly in our financial success. They convince us quite conclusively that we are not receiving adequate compensation for services rendered, that at our present rate we will never be able to accumulate a competency for the rainy day that awaits us all. They prove, however, to our entire satisfaction, that by investing a few hundred, or better, a few thousand, in the enterprise which they represent, we will soon be on easy street, and John D. Rockefeller and Henry Ford will have nothing on us what-

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ever. Speaking of Easy Street, why is it so named? It has occurred to me that it is not because of the ease with which we attain it, or by the ease with which we maintain our residence upon it, but the easy facility with which we leave it, kindly, courteously, yet most efficiently, assisted by the class of gentlemen of whom we are speaking. Let us get back to the subject, though. Our friend the stock salesman has in some mysterious, vague sort of way heard of our great influence in the section of country in which we live, and of our marked business abiility, and his company is very desirous of receiving some of the benefits resulting from this great prestige which we possess. For this reason he has traveled several hundred miles from some distant city to let us in on this wonderful proposition. But while he, as well as his company, is extremely anxious to have us connected with them, we will have to act very quickly as there are but a few shares of stock left, which may even now be placed, as a certain well known financier is very desirous of obtaining possession of them. Should this have happened, however, our friend the salesman will endeavor by every means within his power, stopping short of nothing except the use of dynamite, to pry loose the desired number of shares from some block of stock already sold and highly prized by its owner. As the ground has been so amply prepared by our previous training, this seed finds ready lodgment in congenial soil. Or, to use another metaphor, being suckers, we bite vigorously, almost viciously, in fact, more like horny heads than mere suckers. The result is that when this gentleman takes his departure, he has our check or negotiable note for quite a sum, and in a few days we receive the most beautifully engraved certificate of stock that we have ever seen, proclaiming to the world, that we are sole owners of a certain number of shares of stock, it may be, in an oil company, in which all the oil ever produced will be used to lubricate the stock salesman's tongue, or it may be in a company to be organized to manufacture ice at the North Pole, or in a plant to be erected at the equator to store up the heat rays of the sun against a rumored strike upon which Old Sol intends going sometime in future ages. This sort of thing would be extremely ludicrous were it not so very pathetic. To think that a class of men supposed to be more intelligent and better informed than the average, would fall for this sort of talk is simply ridiculous, but we often do fall, and fall hard.

What can be done to remedy this sort of thing? I frankly admit that I do not know. Human nature has been pretty much the same through all the ages, and will probably remain so until the end of time. Instead of one sucker being born each minute, there are probably two or three, because of the increase of population. If Patrick Henry were with us today, he would probably exclaim that "Eternal vigilance is the price of financial success." The dictum "Once a sucker, always a sucker" usually holds true, but fortunately, not always. If we are so unfortunate as to have our names enrolled upon this list, I believe we should endeavor by every means within our power to cultivate such an indomitable, invincible will power that will enable us to say "no," to mean it, and to stick to it. Nothing but this, save death itself, or utter financial ruin, will purge our names from this list.

Probably a safe rule to follow would be never to speculate at all, and, unless we are one of those rare combinations—a good business man as well as physician—never to make an investment without first consulting a friend in whose business ability and integrity we have the utmost confidence.

NERVOUS AND MENTAL MANIFESTATIONS FOLLOWING CHRONIC INTOXICATION WITH VALERIAN

By ALFRED GORDON, M. D., Philadelphia, Penn.

Valerian is one of the most active antispasmodic remedies. Everyone of its preparations has similar physiologic reactions although they differ in degree and intensity. The characteristics of the reactions consist at first of stimulation of the brain and medulla. This phase, which is brief, is promptly followed by a more or less prolonged period of fatigue, apathy, and a paretic state. The modifications in the function of the motor apparatus, also in the reflectivity, are apparently of central origin and not of peripheral as the first impression may be. The sympathetic nervous system is apparently also involved, since the vasomotricity is equally influenced: the vasoconstrictors are manifestly affected as the arterial tension is elevated. On the other hand, when stronger doses of valerian are taken, hypotension is observed.

Not only the circulatory but also the re-

spiratory apparatus is influenced by valerian, or by its derivatives. The number of respiratory movements is decidedly augmented and again probably through a cerebro-medullary mechanism.

Physiological as well as experimental investigations show conclusively that the chief effect of valerian lies in the antagonism to convulsive or excitant states. L. Branton, for example, observed that valerian arrested the spasmodic action of small doses of strychnia. All excited states of the nervous system being manifested in cerebro-medullary phenomena in the domain of circulatory, respiratory, or digestive apparatuses become diminished, greatly modified or removed by administration of valerian. In Grisar's experiments there was a diminution of reflexes, somnolence, paretic state and general depression of the nervous system (Inaugurale Dissertation-Bonn). Sikorska's experiments (These de Geneve) show that small doses are an excitant of the motor cortex; large doses produce depression, and from all doses there is a diminished resistance to fatigue.

In a general manner valerian is to be considered as an excitant terminating in depression or perversion of motor functions. To the same conclusion arrived Ch. Fere (Comptes Rendus de Soc. de Biologie LVI; p. 547, 1904). Finally in more recent investigations, H. Boruttan (Deut. Med. Wchnschr., 3 Oct., 1918, p. 1109) demonstrated that under the influence of valerian dogs become quiet and react little to external stimuli; they remain in a sitting position with open eyes, and their reflex irritability is diminished. Furthermore, when larger amounts of the drug are given by injecting it into the lymphatic channels, prolonged paralysis of the central nervous system is observed.

In the literature at my disposal, with one single exception, no mention is made of symptoms referable to the function of the cerebellum under the influence of valerian. E. Durand, in his book on valerian, published in 1921, is the only author who in his experiments with valerian on mice and guinea-pigs observed manifestations not only of disturbed cerebrum and medulla but also of the cerebellum, namely, rotation around the axis and loss of equilibrium.

The writer has also failed to find in the literature records concerning prolonged use or chronic use of valerian. The majority of clinical and experimental investigations on the subject are concerned exclusively with immediate effects of the drug, but not with remote reactions after the patients had been taking it for a continuous period of time.

In view of the fact that valerian is useful as a sedative medication in hysterical and other functional disorders of the nervous system, also as a rapidly active stimulant in certain low states which occur in acute febrile diseases, it appeared interesting and instructive to put on record the history of a case which presented, in addition to the well-known characteristies, two special features not mentioned in the literature, namely, the consequence of a chronic intoxication with valerian and the cerebellar manifestations.

The preparation used in this case was tincture of valerian. At this juncture it may not be superfluous to mention that the cerebromedullo-cerebellar, as well as the mental phenomena, in the opinion of a sceptical observer, may have been due to the alcoholic contents with which tinctures are usually prepared. To refute this possibility it is well to bear in mind the recent experimental work of Macht and Ting, published in the *Jour. of Pharmacology and Experimental Therapeutics*, 1921-22; p. 361). They have shown that the effect of valerian is not due to inhalation of alcohol contained in the tincture of valerian, because controls made with the same quantities of ethyl-alcohol alone failed to produce the symptoms caused by the drug.

Mrs. A. H., 35 years of age, following a difficult and protracted labor, commenced to use tincture of valerian for her insomnia. At first she was given a half of a drachm. Gradually, without asking for advice of her physician, she increased each individual doze. Having succeeded in obtaining the drug without prescriptions, she continued using it daily. At the time she came under my observation, I was informed that the patient had been using the drug, to the exclusion of any other medication, during a period of eighteen months. Her daily ratio of one ounce was taken in teaspoonful doses several times a day. Prior to the date when she commenced the use of the drug she was in excellent condition. The somatic recovery from the difficult labor was also complete. There was no history suggesting lues. She has three healthy children; the Wassermann test of her blood, as well as of her husband's, taken twice, was negative. The

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family history was also normal. The patient prior to or during her present illness never used alcoholic beverages. Her mental condition was formerly good. A complete blood examination showed a somewhat low hemoglobin content (75). Red blood corpuscles 4,000,000. No abnormalities were found in the blood cells. The slight anemia present was not sufficiently pronounced to cause the symptoms referable to the central nervous system. Urinalysis showed: specific gravity 1030; traces of albumen; no sugar; a few hyaline casts and cylindroids.

The patient's condition was as follows: There was a marked mental hebetude; an inability to carry out correctly orders given: at first she tried to comprehend the question asked, then she stared, hesitated; attempted to do what she was told, interrupted her attempts, commenced over again and finally acted in a reverse manner. For example, when told to stand up, she extended her legs; when told to extend the arms, she flexed them; when told to protrude her tongue, she closed her mouth tightly; when told to write, she did not know how to go about it. When a pen holder was placed in her hand, she attempted to write with the opposite end of it. Objects shown her she misinterpreted, and when reminded of the correct names, she hesitated before repeating them and soon forgot them. When left to herself, she walked in the wrong direction, even at the point of danger: she was apt to walk towards an empty space. She might attempt to handle burning objects if not prevented from doing it. She often talked to herself in a most unintelligible manner. She had to be fed. She was extremely unclean, handled the excretions, urinated wherever she happened to be. She showed no delusions, but a hallucinatory state was present, as frequently she was found talking in an animated manner with her eyes directed towards the ceiling, moving her hands in the same direction. At times she became delirious, at others stuporous, or mute; she was totally oblivious to surroundings.

Somatic Phenomena.

The gait was decidedly ataxic, such as seen in cerebellar lesions. There was a tendency to fall backwards: the trunk did not follow the legs (asynergia) and at the same time a zigzag movement of the body was evident: she walked from side to side. She dragged her legs, scraped the floor in walking. It was a great effort for her to go up the stairs: she was obliged to hold on to the banister with one hand and with the other she held firmly to another person; then she tried to raise her foot, but the toes invariably struck the woodwork before the foot was placed on the next step. Station with open and closed eyes was impossible; she immediately fell backwards. The tonicity of the lower limbs was decidedly lowered. Their flaccidity was marked. Although voluntary movements were possible, nevertheless they were extremely slow. Passive movements were carried out with great facility in view of the hypotonia. The muscular power and tonicity in the upper extremities were identical with those of the lower ones. The patellar tendon reflexes were markedly diminished. The same was observed with the tendon Achilles reflex. As to the plantar reflex there was no response at all to stimulation of the sole: sometimes there was a mild extension. The same results are obtained with the other methods (Oppenheim, Chadwick and Gordon). There was some ataxia in the upper extremities observed with both the pointing and the finger-to-nose tests. In the first test the patient's finger never reached the object placed before her, but invariably fell externally and at a considerable distance from it, more with the right than with the left hand. In the finger-to-nose test the index reached the point of destination only after several excursions in all directions. The tendon reflexes of the upper extremities were obtainable, but with great difficulty: the amplitude of the arms on testing was considerably small. Adiadochocinesia was distinct in the right hand: in the rapid pronation and supination movements this hand was manifestly lagging and did not keep pace with the left hand.

General sensibility to all forms was diminished. Tests for special sensations could not satisfactorily be carried out in view of the patient's disturbed mentality. The eyegrounds with the exception of a slight congestion of the retinal blood vessels were normal. The ocular muscles functionated normally, but there was, however, a lateral nystagmus when the eyes turned to the right.

The speech did not show the disturbances which were usually observed in organic lesions of the brain. There was no motor aphasia or anarthria, but the words were uttered very slowly and at times they could not be under-

stood fully, the labial letters especially being unclear. As to the sensory aphasia, it could not be determined because of the incoherent mental state.

The course of subsequent events in this case was as follows: By gradually decreasing the quantity of valerian, by prolonged rest in bed, appropriate dietetic and hygienic measures, and finally by complete withdrawal of the drug, considerable improvement was obtained. At the time of writing these notes, the cerebral and cerebellar manifestations have totally disappeared. However, there is still present a state of asthenia which has not yet been completely removed.

To sum up the striking manifestations of the present case, we find a combination of mental and nervous phenomena such as are frequently observed in classical psychoses and in organic diseases of the nervous system. As to the former, there are present many essential elements of a confusional psychosis, which is frequently observed in post-infectious processes of any origin, or in toxic states from acute or chronic absorption of organic or inorganic chemical elements. The absorbing interest in this case lies in the cerebellar manifestations which are ordinarily encountered in tumors, vascular lesions or lues of the cerebellum.

The morbidity of this organ was so striking at first glance that no other possibility suggested itself. Further examination and observation pointed more and more strongly that a toxic state could simulate any gross lesion of the central nervous system. It is well known that syphilis could at any stage present symptoms of cerebral, medullary, cerebellar, and peripheral character. Recently a young married woman, wife of a physician, developed typical phenomena of a cerebellar nature all confined to one side. All the characteristic symptoms were present with the exception of papillary oedema. The patient was treated with antiluetic remedies and made a complete recovery.

In cases of acute or chronic morphin intoxication, changes in the motor and sensory apparatuses, also in reflexes, are commonly observed. In a recent case of heroin intoxication there were present symptoms referable to cortical irritation with epileptiform convulsions as a consequence. (*Journal of American Medical Association*, April 2, 1921).

Valerian is an antispasmodic like morphin or heroin, and, like them, may be useful in many instances of nervous irritability. On the other hand, like them, it may become damaging directly to the central nervous system when a state of valerian toxicity develops. Experimental data related above go parallel with clinical observation.

The pernicious effect produced by a prolonged ingestion of valerianate preparations on the economy in general, and on the central nervous system in particular, finally, the occurrence of cerebellar phenomena which with one exception have never been mentioned by experimental investigators, all these reasons warranted the writer to place this case on record.

1812 *Spruce Street.*

THE ABDUCTION TREATMENT OF FRACTURE OF THE NECK OF THE FEMUR.*

By BERNARD H. KYLE, M. D., Lynchburg, Va.

This fracture deserves special mention for the reason so many patients with fracture of the neck of the femur are not treated, either because of the physical condition of the patient or because the physician is not familiar with the reduction.

The patient, having been anesthetized, is placed on a pelvic support with a perineal bar, the shoulders resting on a support of equal height. Two assistants make manual traction on the extended limbs, drawing the perineum firmly against the bar and completely reducing the shortening on the injured side, the surgeon meanwhile lifting the thigh upward if it is below the place of its fellow. The limb is then rotated slightly inward. Both limbs are now extended and under traction. The sound limb is abducted to the limit first and retained in this position to maintain balance of the pelvis and give the range of normal abduction for this particular patient. The injured limb that is now under manual traction and internal rotation is slowly abducted until the limit is approached while the physician makes pressure over the great trochanter. Here the trochanter is brought into contact with the side of the pelvis, thereby overcoming the active agents of deformity. The patient is now ready for the plaster, stockinette having been applied from the toes to the axilla previous to the anesthetic. Extending from the top to pelvic bones under the stockinette is a wide piece of bandage to be used as a scratcher. Sheet wadding is now placed around the patient from toes to

*Read before the meeting of the South Piedmont Medical Society, in Danville, Va., November 18, 1924.

axilla using a large amount around the body. Next, piano felt is placed over each anterior superior spine of the ilium and sacrum. It is well to split this felt, thereby adding to the softness and give of the felt. The plaster is now applied from toes to axilla on the injured side. It is well to incorporate a piece of thin steel in the plaster opposite the hip and under the knee to add to the strength of the plaster. The plaster having been properly trimmed to show all toes and give sufficient means of using the bed pan, the patient is placed on a firm bed with the injured limb extending from the bed. The plaster should not be covered with the bed clothing but left exposed to dry.

These patients should receive the best nursing possible. the most important of all being to turn the patient on face three times daily of one hour each.

I have treated a few cases of fracture of the neck of the femur by means of a Bradford abduction splint with very good results. This brace maintains abduction, prevents weight bearing, and allows traction. This brace has been used only for those cases which I have not had the courage to place in the recumbent position in plaster because of old age. The difficulty regarding the brace is the delay in having the same made.

The one plea of this paper is that more fractures of the neck of the femur be treated by means of this reduction or by the use of the Bradford abduction brace.

The author of this reduction, Dr. Whitman, to whom I am indebted for this information, does not allow his patient to do weight bearing for one year. Personally, I have removed the plaster in eight weeks and allowed the patient up with crutches the twelfth week with good results. I must say, however, that the longer the patient is prevented from doing weight bearing the better. All of my cases treated by this method have walked without a limp and have had no actual shortening.

Medical Building.

The Truth About Medicine

In addition to the articles enumerated in our letter of December 27, 1924, the following have been accepted:

Benzol Products Co.
  Cinchophen—B. P. C.
Hynson, Westcott and Dunning
  Antimony Sodium Thioglycollate
  Antimony Thioglycollamide
Eli Lilly and Co.
  Iletin (Insulin—Lilly), U-10, 10 c.c.
  Iletin (Insulin—Lilly), U-20, 10 c.c.
  Iletin (Insulin—Lilly), U-40, 10 c.c.
H. K. Mulford Co.
  Ampules Solution Pituitary Extract—Mulford, 0.5 c.c.
  Iodo-Casein With Chocolate
Parke, Davis and Co.
  Iron Citrate Green
    Ampules Iron Citrate Green—P. D. and Co., ¼ grain.
    Ampules Iron Citrate Green—P. D. and Co., ¾ grain.
    Ampules Iron Citrate Green—P. D. and Co., 1½ grain.
  Mercurettes
  Proposote
    Proposote Capsules 5 minims
    Proposote Capsules 10 minims
Powers-Weightman-Rosengarten Co.
  Tryparsamide
Pure Gluten Food Co.
  Hoyt's Protein Cereal
Sharp and Dohme
  Tincture Digitalis Purified (Fat Free)—S. and D.
Standard Chemical Co.
  Standard Radium Solution for Intravenous Injection, 5 micrograms Ra.
  Standard Radium Solution for Intravenous Injection, 10 micrograms Ra.
  Standard Radium Solution for Intravenous Injection, 25 micrograms Ra.

NEW AND NON-OFFICIAL REMEDIES

Diphtheria Toxin Antitoxin Mixture 0.1L+ (Gilliland).—A diphtheria toxin antitoxin mixture (see New and Non-official Remedies 1924, p. 299), each c.c. of which represents 0.1L+ dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of three 1 c.c. ampules; in packages of thirty 1 c.c. ampules; in packages of three 1 c.c. syringes, and in ampules containing respectively 10 c.c., 20 c.c., and 30 c.c.—Gilliland Laboratories, Ambler, Pa.

Mallinckrodt Tetrabromphenolphthalein Sodium Salt.—A brand of tetrabromphenolphthalein sodium. —N. N. R. For a discussion of the properties, actions, uses and dosage, see Jour. A. M. A., December 27, 1924, p. 2095. Mallinckrodt tetrabromphenolphthalein sodium salt is supplied in 5 Gm. ampules. Mallinckrodt Chemical Works, St. Louis. (Jour. A. M. A., January 3, 1925, p. 37).

Bacillus Bulgaricus—Squibb.—A culture of bacillus bulgaricus, marketed in tubes, each containing 12 c.c. Bacillus bulgaricus—Squibb is designed for internal administration and for direct application to body cavities, abscesses and wounds. See "Lactic Acid-producing Organisms and Preparations," New and Non-official Remedies, 1924, p. 169. E. R. Squibb and Sons, New York.

Neorobin.—A product obtained by the reduction of chrysarobin. The actions and uses of Neorobin are the same as those of chrysarobin. It is claimed that neorobin is somewhat more active than chrysarobin and that its staining qualities are less than those of chrysarobin. Like chrysarobin, neorobin is used in the treatment of skin diseases, especially in psoriasis. It is used in the form of ointments which must be freshly prepared. Neorobin is marketed in vacuum sealed tubes containing 1 and 5 grains, respectively. H. K. Mulford Co., Philadelphia.

Intracutaneous Tuberculin for the Mantoux Text.—A preparation of Tuberculin Koch (New and Non-official Remedies, 1924, p. 309), marketed in pack-

ages of one vial containing 0.0001 Gm. tuberculin "O. T." accompanied by a vial containing physiological solution of sodium chloride sufficient to make 1 c.c. Lederle Antitoxin Laboratories, New York. (Jour. A. M. A., January 10, 1925, p. 119).

Tablets Benzyl Fumarate—Abbott, 5 grains.—Each tablet contains 5 grains of benzyl furmarate—Abbott (Jour. A. M. A., July 24, 1924, p. 41). The Abbott Laboratories, Chicago.

Ampules Solution Pituitary Extract—Mulford, 0.5 c.c.—Each ampule contains 0.5 c.c. of pituitary solution—Mulford, New and Non-official Remedies, 1924, p. 229, H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 17, p. 203).

Ovarian Substance—L. and F. Desiccated.—The entire fresh ovary of the hog, freed of extraneous matter, dried and powdered without the addition of diluent or preservative. For a discussion of the actions and uses of ovary preparations, see New and Non-official Remedies, 1924, p. 220. The product is marketed in 2 and 5 grain capsules and in 2 and 5 grain tablets. Lehn and Fink, Inc., New York.

Ovarian Residue—L. and F. Desiccated.—The residue from the fresh ovary of the hog, after removal of the corpus luteum, dried and powdered without the addition of preservative or diluent. For discussion of the actions and uses of ovary preparations, see New and Non-official Remedies, 1924, p. 220. The product is marketed in the form of 5 grain capsules and 2 and 5 grain tablets. Lehn and Fink, Inc., New York.

Corpus Luteum—L. and F. Desiccated.—The fresh substance of the corporea lutea of the hog, dried and powdered without the addition of diluent or preservative. For a discussion of the actions and uses of ovary preparations, see New and Non-official Remedies, 1924, p. 220. The product is marketed in the form of 2 and 5 grain capsules and 2 and 5 grain tablets. Lehn and Fink, Inc., New York.

Proposote.—A condensation product of creosote and phenylpropionic acid. It contains the equivalent of 50 per cent of creosote. Proposote is not decomposed by the gastric fluids and passes the stomach practically unabsorbed. It is decomposed in the intestine and its components are chiefly eliminated through the kidneys, but it is claimed that a part of the liberated creosote is eliminated through the respiratory tract. Based on this latter elimination, the administration of Proposote is claimed to be of value in bronchitis and coughs, due to bronchial infections. Proposote is used for the same purposes for which creosote is administered. It is marketed in the form of capsules containing 5 and 10 minims, respectively.—Parke, Davis and Co., Detroit.

Standard Radium Solution for Intravenous Injection, 5 micrograms Ra: Each ampule contains radium chloride—Standard Chemical Co. (New and Non-official Remedies, 1924, p. 277), equivalent to 5 micrograms of radium element in physiological solution of sodium chloride, 2 c.c. Radium Chemical Co., Pittsburgh.

Standard Radium Solution for Intravenous Injection, 10 micrograms Ra: Each ampule contains radium chloride—Standard Chemical Co. (New and Non-official Remedies, 1924, p. 277), equivalent to 10 micrograms of radium element in physiological solution of sodium chloride, 2 c.c. Radium Chemical Co., Pittsburgh.

Standard Radium Solution for Intravenous Injection, 25 micrograms Ra: Each ampule contains radium chloride—Standard Chemical Co. (New and Non-official Remedies, 1924, p. 277), equivalent to 25 micrograms of radium element in physiological solution of sodium chloride, 2 c.c. Radium Chemical Co., Pittsburgh.

Iletin (Insulin—Lilly), U-10, 10 c.c.: Each c.c. contains 10 units of iletin (insulin—Lilly). (New and Non-official Remedies, 1924, p. 152). Eli Lilly and Co., Indianapolis, Ind.

Iletin (Insulin—Lilly), U-20, 10 c.c.: Each c.c. contains 20 units of iletin (insulin—Lilly). (New and Non-official Remedies, 1924, p. 152). Eli Lilly and Co., Indianapolis, Ind.

Iletin (Insulin—Lilly), U-40, 10 c.c.: Each c.c. contains 40 units of iletin (insulin—Lilly). (New and Non-official Remedies, 1924, p. 152). Eli Lilly and Co., Indianapolis, Ind.

Tincture Digitalis Purified (Fat Free)—S. and D.—A fat-free tincture of digitalis corresponding in strength to tincture of digitalis—U. S. P., containing 45 per cent. of alcohol. It is standardized by the one hour frog method of the U. S. Pharmacopoeia. The actions, uses and dosage are the same as that of tincture of digitalis U. S. P. Tincture digitalis purified (fat-free)—S. and D., was introduced at a time when the "fat" of digitalis was believed to cause gastric disturbances. At present this claim of superiority is not tenable and the preparation is sold simply as a standardized tincture of digitalis. Sharp and Dohme, Baltimore. (Jour. A. M. A., January 24, 1925, p. 285).

Antimony Sodium Thioglycollate.—A compound formed by dissolving antimony trioxide in a solution of a mixture of sodium thioglycollate and thioglycollic acid. It contains not less than 37 per cent of antimony. The actions and uses of antimony sodium thioglycollate are the same as those of antimony thioglycollamide, but it is more soluble and in higher doses appears to be less toxic. Hynson, Westcott and Dunning, Baltimore. (Jour. A. M. A., January 31, 1925, p. 369.)

PROPAGANDA FOR REFORM

Hoyt's Gluten Flakes Not Accepted for N. N. R.—Hoyt's Gluten Flakes is marketed by the Pure Gluten Food Co., New York, as a ready-to-eat gluten preparation. The claims are made that it is "A perfect gluten," that it contains "40 per cent. Protein," which is asserted to be the government standard for gluten, and that it is "free from starch." These statements of composition are misleading. A product containing 40 per cent. of protein is not a "perfect gluten" nor is 40 per cent the government standard for gluten flour, but the lowest limit of protein to which the term gluten flour may be applied without incurring danger of prosecution by the federal authorities. The Council on Pharmacy and Chemistry declared Hoyt's Gluten Flakes inadmissible to New and Non-official Remedies, because (1) its composition is not correctly declared, and (2) the claims for its effects on nutrition and health are unwarranted and misleading. (Jour. A. M. A., January 3, 1925, p. 53).

Restor Vin Not Accepted for N. N. R.—Restor Vin is the therapeutically suggestive name under which the Robinson-Pettet Co., Louisville, Ky., markets a mixture stated to have the following composition: solution of albuminate of iron, 8 pints, detannated wine of wild cherry 12 pints, glycerin 8 pints, elixir of calisaya 12 pints, tincture of hydrastis 1 pint, hypophosphorous acid 8 ounces, solution of saccharin 4 ounces, calcium glycerophosphate 1 ounce, water 16 ounces. The Council on Pharmacy and Chemistry found Restor Vin inadmissible to New and Non-official Remedies, because it is an unscientific mixture, marketed under a therapeutically suggestive name and with unwarranted therapeutic claims that may

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lead the public to depend on this "cordial" in serious conditions. (Jour. A. M. A., January 3, 1925, p. 54.)

Leucotropin.—Leucotropin is a German proprietary exploited by Morgenstern and Co., New York. It is to be administered intravenously. From the advertising it would appear that "Leucotropin" is a molecular combination of hexamethylenamin and cinchophen. It is most probable, therefore, that the product will merely have the effect of its two components. There is no warrant for the intravenous administration of hexamethylenamin, and it is difficult to believe that the intravenous use of cinchophen will give results materially different from those obtained when cinchophen is given by mouth. A letter has been sent out by Morgenstern and Co., which suggests that two doses will be sufficient to "judge the effects" of this German synthetic. This, of course, was an appeal to the uncritical. (Jour. A. M. A., January 3, 1925, p. 56).

Colodine and Colobromodine not accepted for N. N. R.—Colodine and Colobromodine are products of the Colloidal Laboratories, Philadelphia. They are stated to be the invention of Harry J. Novack, M. D., and the claims in the advertising are based on a publication by Dr. Novack. The nature and composition are not clearly stated; according to the label, they contain respectively, iodin and iodin and bromin in "colloidal form." From vague statements made, it may be concluded that Colodine is an iodin treated fat, the nature of which is kept secret and that it does not contain iodin in colloidal form. Colobromodine is stated to be prepared from Colodine by the addition of bromin. The claims and statements made in regard to Colodine appear to be governed by imagination rather than by observation. The claims cover all conditions for which iodin medication has been employed at various times—and some additional ones, some of which are not only unreasonable, but dangerous. The claims advanced for Colodine are extended to Colobromodine with the addition that from the latter may also be obtained "the sedative action of pure bromin." The Council on Pharmacy and Chemistry found Colodine and Colobromodine unacceptable for New and Non-official Remedies because (1) the statements made in regard to their chemical character are indefinite and misleading; (2) the statements of their pharmacologic and therapeutic action are misleading and unwarranted, and (3) the circular included with the trade package may lead to their ill-advised use by the public. When the Council sent its report to the Colloidal Laboratories, the firm submitted a reply in which it was promised that the circular would be revised to remove conflict with Rule 4 and submitted a proposed revision. The information failed to clear up the contradictory statements of composition (Rule 1), and still contains dangerously misleading therapeutic claims (Rule 6). (Jour. A. M. A., January 10, 1925, p. 135).

Somnos.—Somnos is marketed by the H. K. Mulford Co. It was investigated by the Council on Pharmacy and Chemistry in 1906. The committee that made the investigation was unable to find that Somnos was less toxic than hydrated chloral or that it had a less depressing effect on temperature, respiration or circulation. On the contrary, the physiological effects were indistinguishable from hydrated chloral. (Jour. A. M. A., January 10, 1925, p. 136).

Colon Bacillus Vaccine, Gonococcus Serum and Gonococcus Vaccine Omitted from N. N. R.—The Council on Pharmacy and Chemistry reports that all colon bacillus vaccines, gonococcus serums and gonococcus vaccines have been omitted from New and Non-official Remedies. The Council took this action because an examination of the existing evidence goes to show that these preparations are not of therapeutic value. (Jour. A. M. A., January 17, 1925, p. 220).

Loeflund's Food Maltose Not Accepted for N. N. R.—Loeflund's Food Maltose is claimed to be composed of dextrin 59.7 per cent., maltose 40 per cent and sodium chlorid 0.3 per cent. Since dextrin is the preponderating constituent of the product, the Council on Pharmacy and Chemistry holds it incorrectly named, and on this account ineligible for New and Non-official Remedies. (Jour. A. M. A., January 17, 1925, p. 220).

Sanocrysin, the Mollgaard Tuberculosis Remedy.—The first copies of a book by Mollgaard and his coworkers, describing experiments with sodium auric thiosulphate, for which the name "Sanocrysin" has been registered, have been received in the United States. The outstanding fact in connection with Sanocrysin is that it is only the name that is new. The salt is an old one and is now used in the arts. Mollgaard claims to have improved the process of preparation to remove toxic substances. But one is impressed with the fact that Mollgaard's preparation is dangerous unless its use is carefully supervised, especially in tuberculous animals or persons. Mollgaard claims to have rendered the dangers less serious by the use of serum from calves or horses previously infected with dead tubercle bacilli. While Mollgaard does not claim that the use of the serum takes any part in the cure which Sanocrysin is said to bring about, one cannot help feeling, when reading the results of his experiments that it is the conjunction of the two substances which effect whatever curative influence the treatment may have. The evidence for the value of this treatment in tuberculosis, however, is not convincing. In the United States the new treatment cannot be sold until it is licensed by the United States Public Health Service. This Service is carrying out experiments to determine if a license may be granted. Meanwhile the Council on Pharmacy and Chemistry will investigate and issue a preliminary report. In view of the dangers involved in the use of Sanocrysin, the best advice to those suffering from tuberculosis is to continue the well known and well tried methods of sanatorium treatment. (Jour. A. M. A., January 24, 1925, p. 287.)

Beto.—Beto is advertised as a "Blessing to Diabetics." Like most nostrums sold for the alleged cure of diabetes, Beto is featured as a product whose use makes it unnecessary for the diabetic to diet. When first put on the market, Beto was sold and advertised exclusively as a cure for diabetes. Later, it was recommended, in addition, for high blood pressure, "all kidney troubles" and dropsy. Beto comes in the form of tablets and sells at $5.00 per package. The A. M. A. Chemical Laboratory reports that the product may be considered to be composed of talc 3 per cent, magnesium sulphate U. S. P., 97 per cent, and oil of cinnamon, a trace. Each tablet was equivalent to approximately 7 gm. of Epsom salt, or one-half the dose given in the U. S. Pharmacopoeia. Thus the purchaser of Beto pays $5.00 for 1½ pounds of Epsom salt, which can be bought for 15 cents a pound. Beto is not a cure for diabetes and to sell Epsom salt under the claim that it is a cure and with the deadly dangerous advice that when taking it, it is unnecessary for the diabetic to diet, is an offense against business morals and a menace to the public health. (Jour. A. M. A., January 24, 1925, p. 304).

Colloidal Gold Not Accepted for N. N. R.—"Colloidal Gold" (Kahlenberg-Klaus Co.), is claimed to

have been developed by Professor Louis Kahlenberg, of the University of Wisconsin, and Dr. Edward H. Ochsner, of Chicago. The chief advertising matter is a circular which states that the remedy "Has proved to be far superior to X-ray and radium in the treatment of inoperable cases of cancer and also as post-operative treatment." The solution is claimed to contain one one-thousandth of one grain of pure gold in colloidal form in every ten drops. The remedy is sold in four-ounce bottles at $5.00 per bottle. Calculation shows that the value of the gold in a bottle is less than one cent. In response to a letter from the Council on Pharmacy and Chemistry, asking for evidence to substantiate the claims for the preparation, the manufacturer referred to an article by Dr. E. H. Ochsner. The article contains reports of four cases. In but one of the four cases was the diagnosis proved by miscoscopic examination and death from cancer indicates that the colloidal gold had no effect on the disease. In the other three cases there was no microscopic examination of the tumor. Every surgeon and pathologist of wide experience knows how misleading the gross appearance of tumors may at times be. It is almost inconceivable that a serious investigator of a method of treating cancer should have neglected such an obvious and simple means of controlling his work. Until more critically studied cases, supported by microscopic examination of the tissues, are reported, in which there has been definitely demonstrable retrogression or disappearance of the tumor, the Council on Pharmacy and Chemistry sees no reason for believing that "Colloidal Gold" offers anything more in the treatment of carcinoma than do the other colloidal preparations that have preceded it. The Council found "Colloidal Gold" inadmissible to New and Non-official Remedies because the claims advanced for it are unwarranted. (Jour. A. M. A., January 31, 1925, p. 387).

Correspondence

Notes on the Life and Work of Sir James Mackenzie.*

London, England,
January 26, 1925.

To the Readers:

I arrived in London yesterday, possessing letters of introduction to Sir Thomas Lewis and Sir James Mackenzie. I had completed a pleasant call upon Sir Thomas Lewis and was asking him for directions to Sir James Mackenzie's residence, at Albert Hall-Mansions, Kensington, when I was informed by Sir Thomas, with sorrowful tones, that Sir James had just died a few moments before.

Sir James Mackenzie, M. D., F. R. S., F. R. C. P., LL.D., was a distinguished general practitioner who also was a heart specialist. Made famous in the annals of medicine by his pioneer work in the diseases of the heart, he refused to be only a heart specialist. He preferred to think deeper of the problems of medicine by applying his energies to the solution of problems of symptomatology. Although an interest in one group of symptoms emanating from or about the heart fixed his thought on this organ, and although his efforts to unravel some of the knotty problems connected with the symptomatology of the heart was the occasion of the development of a new group of heart conditions, Dr. Mackenzie never failed to hold fast to the broader significance of symptoms in general and never failed to take a wider view of symptoms than is taken by the average specialist. So, in the latter days of his life, he set himself apart to the task of attempting to evolve a system in medicine by which some conclusions may be arrived at in the domain of symptoms.

As a large proportion of the readers of the Virginia Medical Monthly may be said to be general practitioners, and as this distinguished man in medicine was a shining example of the possibility for increasing our knowledge in medicine, on the part of the general practitioner, I am sending some extracts from the *London Times*, of January 26, 1925, hoping that these may be of interest to physicians in Virginia.

Alexander G. Brown, Jr.,
Editor.

*This letter from our Editor was received the day after the February issue had gone to press. Because of its unusual interest, we are taking the liberty of publishing it now, although Dr. Brown returned home the middle of February.

Extracts From London Times on Sir James Mackenzie.

Sir James Mackenzie, the heart specialist and pioneer of the "separate science" of medicine, died January 25, at Albert Hall-Mansions, Kensington, at the age of 71. Last August he had had to leave his work at the St. Andrews Institute for Clinical Research, which he had founded, and he intended to go abroad to a milder climate. Sir James, who was knighted in 1915, was consulting physician to the King in Scotland. His medical works have been translated into French, Italian, Danish, German, and Spanish. Last year he was awarded the Charles Mickle Fellowship prize at Toronto University for his work during the preceding ten years "to advance sound knowledge of a practical kind in medical art or science."

Sir James' life falls naturally into three parts: his early work as a general practitioner at Burnley, in Lancashire; his sudden leap to world fame as the greatest heart specialist of his day, perhaps of any other day, and his retirement to St. Andrews to devote the closing years of his life to research work and to the founding of an "institute" where his principles might be applied by general practitioners from one generation to another.

Mystery of Symptoms.

Mackenzie often told the story of his first encounters with disease. He came from his studies at Edinburgh to the hurly-burly of a big general practice, and within a few months discovered that he was singularly ill-equipped for the work he had un-

dertaken. The mass of knowledge which he had accumulated was not the kind of knowledge which his daily work required.

At first he supposed that this lack was personal to himself, and so set about finding a remedy. He read vast numbers of medical works; he searched many libraries, but at the end, like Omar, "Came out by the same door" as in he went. Gradually there dawned upon him the truth that the knowledge he was seeking was not available. The leaders of his profession were engrossed in sciences other than the science of medicine: physics, chemistry, bacteriology, physiology, and so forth. Questions bearing a superficial appearance of the utmost simplicity found them dumb.

With that curious directness of mind which was his most outstanding quality, the young Mackenzie perceived almost at once where the fault lay. Every sick man has the same question to put to his doctor: "What does this symptom of which I complain mean so far as I am personally concerned?" To answer that question his doctor must possess a wide knowledge of the manner in which symptoms arise, of their "mechanism," of their evolution, and of their ultimate significance. Thus, what is called "prognosis," or medical prophecy, is the key to knowledge.

There suddenly burst on the young doctor the conviction that even that most commonplace of all symptoms, pain, was largely an unknown quantity. Lacking knowledge of the nature of pain, of its "mechanism," of its causes, of its effect, of its final significance, he realized that so far as he was concerned the symptom was "dumb." To the patient with a headache he must say:

I don't know what pain in the head means; I don't know how it arises; I don't know what parts of the head it affects; I don't even know what pain itself may be—how, then, can I express any opinion about your symptom? How can I make even a wild guess as to what your future prospects of health may be?

There is no doubt that this revelation of ignorance appalled Mackenzie. He never forgot the experiences of these early years, nor the extreme complacency of many of his colleagues in face of his own anxious inquiries. They believed that knowledge was approaching completion; he that it had scarcely begun to exist.

Diseases of the Heart.

He set his teeth and devised one of the most amazing pieces of research work which has ever been planned. This was nothing less than the "following up" of several thousand people (patients) for a period of not less than twenty years. If, he argued, I make exact notes of every symptom I detect in the course of my practice, and if I refresh these notes at each subsequent opportunity, in about twenty years I shall know, more or less, which symptoms are serious and which are trivial, and also what a symptom portends for its possessor.

He began to carry out his programme, and almost at once perceived that it was too much for him. So he resolved, there and then, to confine his attention to symptoms and signs of a particular kind—those usually assumed to bear a relationship to the heart and its diseases. For twenty years his labors were never relaxed. At the end of that time he was in possession of a body of knowledge which, when he published it in his famous book on diseases of the heart, a new edition of which is now in the press, took the medical world by storm. Here, indeed, was a man who spoke with authority.

His book was soon translated into most of the European languages, and there sprang up what came to be known as "the new school of cardiology." Mackenzie himself had come to London and set up in consulting practice. He was well advanced in middle age, not very well known, and very far indeed from wealthy. Few men have dared so much. During these early London days, too, he suffered the grievous loss of one of his daughters, so that they remained in his memory as days of gloom and sorrow.

But that stout heart never quailed. The success of his book encouraged him, and the great kindness shown to him by Lord Knutsford, of which he never tired of speaking, gave him new strength. It stands to the credit of the distinguished Chairman of the London Hospital that he knew a genius when he saw him and went out of his way to give him help. Sir James was offered wards in the London Hospital with all the prestige which such a position carries. The London Hospital, thereafter, became a sharer in his triumphs.

Very briefly, he had devised a method of recording separately the action of the auricles and ventricles of the heart, and so had elucidated for the first time the various arrhythmias met with. Professional literature began to overflow with references to "extra-systoles," "heart-block," "nodal rhythm," and so forth. There gathered around the pioneer brilliant young men eager to help him in his great work.

A "school" was soon in existence which owned the Burnley practitioner as its "father." Mackenzie took a great interest in its development; but never, perhaps, really identified himself with it. Indeed there was infinite pathos in some of the things he said about the "exquisite scientific methods" of these his own "children."

Not long before his death, Mackenzie wrote of himself characteristically to a friend:

My brain is unaffected, and I am having a fine old time reviewing all my past experiences, and am as happy as the day is long except when the pain (*angina pectoris*) comes on.

Then, in relation to his work:

It will come to be realized that the organs of the body are regulated by structure specially evolved for the purpose of conducting a peculiar form of energy called the impulse. The cells of the body have been specially evolved for the reception of this form of energy. The result of stimulation by the impulse is of a particular kind, being graded to suit the circumstances, purposive and effective. These conducting structures, nerves, etc., are not evolved for the conduction of electricity, nor are the cells of an organ made to respond to an electrical stimulus. Physiologists place the organ in artificial conditions, employ artificial stimulation, and obtain an artificial result. From such results they evolve the "law of all or nothing," because that always happens in response to electrical stimulation, the response being sudden, ungraded, and ineffective and purposeless; in striking contrast to the normal response. When this is realized, the whole of the physiological interpretation of the functional activities of organs will have to be scrapped. This is one of the results that I anticipate. Keep this in your mind twenty-five years hence.

Strong words perhaps. But the words of a strong man. Mackenzie's death leaves a gap which can never be filled. His personal friends know that they have lost the kindest and truest of mentors. For above all, he was a man large in sympathy, great in heart, and dauntless in courage.

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Editorial

The Question of Examination of Patients.

Changes have taken place so rapidly in the method of examining patients that it has become necessary to have a better understanding on the patient's part of the reasons and expense of modern medical examinations and on the physician's part as to what these examinations should include.

Many patients have an idea that to be thoroughly examined is unnecessary. However, we believe if they could see how many very definite defects are picked up during the course of these examinations that would otherwise be overlooked and watch the benefit to patients of their correction, they would be satisfied on this score.

In regard to expense they seem to fail to realize that the average complete examination is about as expensive as a new suit of clothes, and far more important, or that, if their means are limited, reductions are made, and that they can even be examined thoroughly without charge if they are not financially able to pay. A little time given by the physician in making these explanations both to the patient and family, and to any layman when the subject comes up, would be very helpful in their reaching an understanding. Also articles written for the lay press should explain these conditions.

From the standpoint of the physician the time has long since passed when he can look at the tongue, feel the pulse, give a proprietary medicine, take a small fee and be satisfied. Every patient applying to a physician deserves a complete examination. Routine inspection of the teeth and of the tonsils, routine Wassermanns, blood pressure readings, urinalyses, blood counts and other examinations have revealed serious conditions time and time again in patients who consulted a physician for some trivial matter. One difficulty lies in the selection of what examinations should be made in each case. It, of course, would be neither honest nor wise to put patients to unnecessary examination stunts. On the other hand, it would be unfair and unwise to leave out some examinations which might reveal something of importance, as for instance basal metabolism or gastric analysis, even though the indications were slight.

Patients do not like to go around and pay so many special fees for special examinations and at times it is better for the physician to whom the patient has been referred to collect these fees. Also it is unwise for those making special examinations to make high charges to patients who are undergoing a good many other examinations. Such technical and laboratory examinations as X-ray, cystoscopic, basal metabolism, electrocardiogram and routine and special laboratory work should be made accurately and carefully but at as low a rate as possible.

When the patient comes for general examination it is best that finances be talked over and that he be told what the approximate charge will be for all the examinations he is to undergo. If at the same time the necessity for these examinations is explained to him and he is told that the charges for the examinations will be made to suit his circumstances, much misunderstanding and difficulty will be obviated.

B. R. T.

The Question of Suicide.

It is absolutely surprising how little medical attention has been paid to the subject of suicide. One can hardly pick up the daily paper without reading of suicides and they form a considerable percentage of the general death rate.

The question is frequently asked whether a person who is of sound mind ever commits suicide. The answer is that sane people, not infrequently, do. In fact, suicide among certain people and in certain periods has been considered a rather heroic deed. Brutus and many other noble Romans committed suicide. Japanese and other Orientals will commit suicide rather than suffer defeat, and perfectly

sane women kill themselves rather than face disgrace. The same is true of men who kill themselves rather than face dishonor. On the other hand, suicide may be committed for purposes which are deemed unselfish, as for instance when a man kills himself so that his family may live upon his life insurance. People who suffer great pain, but whose mental state is not particularly upset, may rather die by their own hand than continue the physical suffering.

On the other hand, of course, many are insane when they commit suicide and it is particularly common in the depressed phase of manic-depressive insanity and may constitute an abnormal reaction to jealousy or unrequited love. Paranoiacs rarely kill themselves, unless they believe that they do so at the command of God, and, when so, they usually kill other members of the family along with themselves. In dementia praecox cases suicide is not uncommon.

The periods of life at which suicide is most common are during adolescence and around the period of change of life both in men and women.

The method used is, of course, very variable. As a rule, women don't blow their brains out or cut their throats because of the disfigurement, while this form of suicide is frequent among men. In Vienna, phosphorus, because of its accessibility at the government match factories, is a common means of self destruction. In this country bichloride, lysol and other drugs that may be easily obtained are frequently used. On the other hand, patients may go to extreme trouble to obtain some unusual drug.

There is a false impression that people who threaten or attempt suicide in a bizarre fashion will not commit suicide. Many instances are known in which this is not the case and a threat or bizarre attempt is always a serious indication of the possibility of self-destruction.

We can not discuss here, at length, the method of prevention of suicide but it is well to bear in mind that it is worth while to educate children to stand the "whips and slings of outrageous fortune," and to instill in them the idea that suicide, to avoid the responsibilities of life, is cowardly. Also we should protect all people mentally afflicted and those who have threatened suicide as far as possible until the danger is over and the heroic idea of suicide under any circumstances should be discouraged.

B. R. T.

Prevent Heart Trouble!

Under the term heart disease we include here diseases of the cardio-vascular system. By this one may mean diseases of the heart and arteries. This is an arbitrary inclusion, using editorial license, for the purpose of popularizing a medical subject before medical readers. This liberty is taken in an effort to present in an editorial column an important subject to our readers, a large proportion being general practitioners. Specialists also may take occasion to note the point under comment, because it is an incontrovertible fact, now, that diseases of the cardio-vascular system are increasing both in morbidity and mortality in America.

One reputable statistician, cited by Barnes,* has shown, from the insurance and other records, that in persons under twenty-five years of age, organic heart diseases now cause as many deaths as typhoid fever; in persons between the ages of twenty-five and thirty-five organic heart diseases cause as many deaths as lobar pneumonia; in persons over forty-five organic heart diseases cause more deaths than "any other disease." This increase of death-rate bespeaks an increase of incidence in this group of diseases. To quote again from Barnes, it was found that of the 3,764,000 men, passed by the local boards and sent to camp up to November, 1917, 500,000 were rejected and over 3 per cent of the draft men were rejected on account of heart disease. This item of evidence is taken from men of military age. Extreme youth, middle age, and old age do not enter into this. Other statistical proof might be presented to emphasize the increased morbidity and, also, the increased mortality in this group of diseases.

Young Hearts.—The association of heart maladies with acute infections of the tonsils, with articular rheumatism, and with other acute infections of the body, during the early period of life, has become a recognized clinical fact. But it is probable that after-effects of this association have been too lightly considered by medical practitioners. The damaged heart has been permitted too often to return to full duty before it has recovered from acute infection of the valvular mechanism, to say nothing of the development of compensatory myocardial structure. So, if youth escapes

*Barnes, Annals of Clinical Medicine, Vol. II, No. 3, pg. 163.

death from acute endocarditis, it may go forward with a regurgitant or obstructed valvular orifice. Full and unrestricted action before adequate training has been given the heart muscle, may mean early death by decompensation.

Young hearts, when diseased, suffer inflammatory damage most frequently in the left endocardium. This valvular and mural endothelium is the selected site of bacterial implantation and destructive pathology. The mitral orifice, with its valvular structure and attachments, is the favorite place of infection. From infancy through childhood and the "teens," tonsillitis and acute rheumatic arthritis serve as a means of implanting heart disease at this point in heart structure. Infancy, childhood and youth suffer in this way a cardiac blight. The mitral endocardium particularly appears to afford favorable breeding ground for the malignant family of streptococcus. The course of throat or mouth infection, the evolution of acute rheumatic arthritis, the progressive stages of acute exanthematous diseases present the time and opportunity to the "strep" for nefarious attacks upon the endothelium lining the left heart. Practitioners today may wisely think of left cardiac endocardium in all cases of acute tonsillitis, acute rheumatic arthritis, and other acute infectious processes in early life. Examination and prolonged observation of the action of the heart at and following these diseases are extremely important. Here, inspection and auscultation and careful thinking on the part of practitioners perform a most useful service in the prevention of chronic valvular heart disease and in the cure of acute endocarditis. Slight structural change in any case may result, but with growth of the heart and growth of the body, mechanical defects may be overcome or rendered less harmful. The heart, in all acute infections of childhood and youth, should always have a foremost consideration in the plan of treatment. Before one may feel sure of securing a cure of acute infections of this period of life, the heart should be adjudged as either cured or unaffected. This judgment of the integrity of the heart in association or following a course of acute infection may be safely reached without elaborate or highly specialized instruments. No electrocardiographic or polygraphic or Roentgenographic studies may be needed for this determination. With a watch and stethoscope and an understanding of the normal heart sounds, and the usual physical signs of beginning valvular disease, one may usually arrive at a safe judgment.

Old Hearts.—Hearts forty-five years old may be considered, for our purposes, with the vascular system as one organ. Years of cardiac systoles and diastoles write the story of unremitting cardio-vascular work. Toxins, whether metabolic, chemical, bacterial or other, separately or combined, produce cardio-vascular disease. These harmful agents act upon the heart and arterial system directly and indirectly. The myocardium and the arterio-capillary system are directly injured by them. Through the vegetative nervous system and glands of internal secretion also, indirectly, cardio-vascular diseases arise. Were hearts rarely affected in youth and permitted to come to maturity free from the chronic valvular defects, following acute infections of early life, there is enough in the fifth decade, as modern life goes, to cause the increase of heart trouble, also reasons for sudden death, so commonly experienced in late years. The daily inhalations of fumes of tobacco, the habit of drinking tea and coffee excessively (caffeine), the daily use of an excessive diet, probably illy balanced and administered to the weary stomach, may be a group of causes in producing cardio-vascular disease in the fifth decade. The influences of chronic-infection-foci in the mouth, teeth, throat, gall-bladder, urinary system, or the disorders of hyperthyroidism and retention of urinary solids from chronic nephritis serve to effect serious damage in the heart and arterial system at this period of life.

Hypertension and myocardial damage usually proceed together at this time. In the beginning the myocardium develops compensatory structural changes and in the terminal stages it loses force and reserve power. Myocardial damage in the old heart displays itself in a number of ways. The heart damage is shown by sinus arrhythmia, by premature and incomplete systoles, by paroxysmal rapid action, by heart block, by auricle fibrillation or flutter, by anginal attacks, by a sense of precordial distress and dyspnoea, or by sings of "acute indigestion' alone. Especially is the frequency of cardio-vascular disease of advanced life noted in the lay press by the fatalities from sudden death from so-called "acute indigestion." The modern methods of life seem to make for an increase of this type of disease with this fallacious explanation.

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Finally, increased blood pressure, chronic infections, abusive habits of diet, and the strenuous life combine to increase heart disease. It is seen not only in business men and obese women, but it is seen among the members of our profession itself. Should not the members of the profession themselves at fifty submit their daily habits and imperfections of the body to a careful study, with a view to the correction of improper habits and for the elimination of foci of infection which may be combining to bring too early heart failure?

A. G. B.

News Notes

Important Notice!

At the Staunton meeting of the Medical Society of Virginia, a recommendation was made that the Virginia State Board of Medical Examiners call the attention of all to whom certificates might be issued to the requirement of the law touching registration.

In regard to this request, Dr. J. W. Preston, Roanoke, secretary of the State Board of Medical Examiners, writes:

"While our folders of information have always contained instructions to those to whom certificates were granted relative to registration, in order that the importance of registration be impressed upon each individual licensed, we have had a leaflet printed in which the law is quoted, and are attaching one of these leaflets to each certificate issued.

"It having developed that in all probability a great many of the older practitioners have neglected to register their certificates, in Richmond particularly, where there is a city ordinance in addition to the State law governing the matter, and since this doubtless holds good for all parts of the State, it has occurred to me that it might be an excellent plan to print a copy of the leaflet in some issue of the Journal between now and the time of licensure, May 1st."

This leaflet is as follows:

IMPORTANT NOTICE!

Attention of all to whom certificates may be granted is called to Section 1612 of Statute, which reads in part as follows:

"Every certificate to practice medicine granted under the provisions of this chapter shall, before the licensee begins to practice thereunder, be presented by him to the Clerk of the Circuit Court of the county or the Corporation Court of the city wherein such practice is to be carried on. The clerk of each of said courts shall keep a book for the purpose, entitled the "Medical Register," and set apart one full page therein for the registration of each licensee, and he shall record therein the name, residence, place and date of birth and source, number and date of the license to practice, and the school of practice to which each licensee professes to belong, and each licensee shall subscribe and verify under oath the matters above mentioned when the same have been so recorded, which if wilfully false, shall subject the person so making oath to conviction and punishment for false swearing as provided by law."

Any practice done for compensation prior to registration of certificate in accordance with the above is illegal.

Since the adoption of the Medical Practice Act, of 1916, the law has required that all who practice in Virginia must register their certificates prior to beginning practice. Dr. Preston writes further: "That many practitioners failed to register in accordance with the law has been brought out by the fact that Norfolk, Newport News and Richmond have passed ordinances making it obligatory upon Commissioners of Revenue to investigate relative to the registration of certificates prior to issuing licenses, and, for this reason, those who have neglected to register will be unable, in the cities mentioned, to obtain a renewal of license until they have complied with the law.

"As it is probable that a great many practitioners in different parts of the State have overlooked the enactment mentioned, or for other reasons have failed to register, I have thought that calling attention to the matter at this time might be of service to them."

It would be well for all of our readers to comply with this ordinance.

The Wise County Medical Society,

At is annual meeting held February 25th, elected Dr. E. P. Cox, Norton, Va., president, and re-elected Dr. C. B. Bowyer, Stonega, Va., secretary-treasurer.

The Botetourt County Medical Society,

At its annual meeting, elected Dr. R. T. Givens, of Glen Wilton, president, and Dr. W. N. Breckinridge, of Fincastle, secretary.

The Augusta County Medical Association

Held its regular quarterly meeting in Staunton, February 4. The attendance was good and several interesting papers were read. Dr. David T. Gochenour, Stuarts Draft, is president, and Dr. H. G. Middlekauff, Weyers Cave, secretary.

Recreation a Necessity for Mental and Moral Health.

Dr. Charles A. L. Reed, a former president of the American Medical Association, makes

the above statement, and this forcibly brings to mind the old adages, "All work and no play makes Jack a dull boy," and "Satan always finds some work for idle hands to do." Facts collected by the Playground and Recreation Association of America confirm the truth of Dr. Reed's statement. Among these are noted the statements that:

Of 800 girls charged with delinquency in one large city of the United States during one year, over 500 attributed their missteps to loneliness and a lack of something to do.

There are more young men in our prisons and correctional institutions than in our colleges and vocational schools.

In St. Paul, Minn., it was found that most of the delinquent children appearing in the juvenile court came from a certain congested district of the city. A social center was opened there, and, in a year, delinquency was reported decreased 50 per cent.

With supervision, there have been found many more children on the playgrounds than when there was no supervision.

As a prevention of juvenile delinquency, Warden Lewis E. Lawes, of Sing Sing, urges the wider extension of community system activities, such as the establishment of more playgrounds, especially in the congested districts; the establishment of community centers to provide opportunities for clean and wholesome recreation; the extension of the Boy and Girl Scout movement, and the interest of adult organizations in the children of today.

The Southwestern Virginia Medical Society

Will hold its next regular meeting at Pulaski, March the 26th and 27th, under the presidency of Dr. F. H. Smith, of Abingdon. Invited guests include Drs. Stuart McGuire, Emory Hill and C. C. Coleman, of Richmond. "Diseases of the Heart" is the subject which has been selected for discussion by Dr. R. A. Morrison, Abingdon, Dr. J. W. Preston, Roanoke, and Dr. A. B. Greiner, Rural Retreat. Voluntary papers will be read by a number of other members. Dr. E. G. Gill, Roanoke, is secretary-treasurer of this Society.

Colonel Micajah Boland,

Medical Director, Gendarmerie d'Haiti, has returned to Port au Prince, after an inspection trip throughout the North of Haiti.

Dr. Hunter H. McGuire,

Winchester, president of the Medical Society of Virginia, left the middle of February for Philadelphia where he expected to do some special work at the University of Pennsylvania. He will be home early in March.

Dr. John Staige Davis,

Of the medical faculty of the University of Virginia, gave a talk on "Reminiscences and Anecdotes of the University," at the monthly dinner of the Richmond Chapter of the University of Virginia Alumni Association on February 26.

Dr. John W. Brodnax,

Coroner of South Richmond and well known as anatomist and artist, delivered a lecture at the Richmond Public Library, February 27, on the subject, "Art as Applied to Anatomy." He was introduced by Dr. Mary B. Baughman, a former pupil.

Dr. William F. Drewry,

City manager of Petersburg, Va., has been appointed by Governor Trinkle as a member of the State Board of Public Welfare for a term of four years. This board is composed of five persons and conducts a general supervision of public welfare work in the State.

Dr. E. R. Miller,

Harrisonburg, Va., was a recent visitor in Richmond, having come here to attend a meeting of the educational committee of the Virginia Sunday School Association.

Dr. and Mrs. E. Howe Miller,

Danville, Va., were recent visitors in New York City.

Dr. J. C. Bodow

Has returned to his home in Hopewell, Va., after being a patient at St. Luke's Hospital, Richmond.

Visit Florida.

Drs. L. A. Robertson and S. E. Hughes, Danville, are among the Virginia doctors who have been spending sometime in Florida.

Louisiana Demands Certificate of Health Before Marriage.

At the last meeting of its legislature, the law makers of Louisiana passed a bill making it compulsory for any male applying for a marriage license to obtain from a licensed physician a certificate showing that he is free from venereal or other constitutional disease. Such legislation seems to be gaining favor steadily since the war, as a measure to prevent infection of innocent wives and unborn children. Among the states which have adopted various

modifications of this law are: North Carolina, Oklahoma, Pennsylvania, Indiana, Michigan, Oregon, Alabama, Wisconsin and Utah.

Hospital Superintendent Resigns.

Mrs. M. G. Payne has resigned as superintendent of the Lynchburg Hospital, Lynchburg, Va., and Miss Florence R. Wells, of the Virginia Baptist Hospital staff, was appointed to fill the vacancy.

Dr. G. G. Painter,

Pulaski, Va., has been visiting his son at Covesville, Va.

Dr. G. F. Simpson,

Purcellville, Va., was called to Boston, Mass., early last month, on account of the sudden illness of his wife who was visiting in that city. Dr. Simpson remained in Boston until she was able to return home.

The Medical Society of the State of North Carolina

Will hold its seventy-second annual meeting at Pinehurst, April 28-30, inclusive. Dr. Albert Anderson, Raleigh, is president and Dr. L. B. McBrayer, Southern Pines, is secretary-treasurer.

Dr. Garnett Nelson, Richmond, has been appointed a delegate from the Medical Society of Virginia to this meeting.

Dr. H. Taylor Hawkins,

Clover, Va., visited his parents in Richmond, Va., in February, at which time he also attended the meeting of the Grand Lodge of Masons in this city.

Dr. and Mrs. J. Kirk Richardson,

Richmond, enjoyed a short vacation in Washington in February.

Large Shipment of Quinine to Greece.

Probably the largest drug shipment ever to leave an American port, consisting of 14,000,000 five-grain quinine tablets shortly will be on its way to Greece. It will be used to combat the scourge of malaria existing in the great refugee camps of that country. National Headquarters of the American Red Cross today appropriated $85,000 for the purchase of this record shipment, which will weigh many tons. It is the last of a series of shipments made by the Red Cross to relieve widespread malaria outbreaks in the congested refugee camps.

The repatriation of nearly 1,000,000 Greek nationals from Asia Minor unavoidably resulted in many of these being quartered in malaria country. The result was a scourge as dreaded as that of typhus. The liberal distribution of the quinine shipments of the American Red Cross has, according to the Greek Depart of Hygiene, saved the lives of tens of thousands of the refugeees and enabled countless others, who otherwise would have been unable to work, to re-establish themselves in their new homes.

Dr. W. W. Chaffin,

Pulaski, Va., ex-president of the State Society, who was prevented by illness from presiding at the last meeting of the Society in Staunton, has been a recent visitor in Richmond. He is now much improved and has taken up some of his professional work.

Dr. Thomas W. Dew,

Fredericksburg, Va., was elected chairman of the Spotsylvania County School Board, at its meeting in February.

Medical Inspector, Richmond Bureau of Health.

Dr. Leta J. White, who graduated from Medical College of Virginia in 1923 and served a year as interne at Memorial Hospital, Richmond, has been appointed Medical Inspector with the Bureau of Health of this city. She succeds Dr. H. O. Bell, resigned, who is now doing post-graduate work in obstetrics at the New York Nursery and Child's Hospital.

Dr. A. T. Finch,

Chase City Va., was a visitor in Richmond last month.

Married.

Dr. Clyde F. Ridge, formerly of Edgar, N. C., but now of Thurmond, W. Va., and Miss Gladys Moody, Richmond, Va., February 18. Dr. Ridge is an alumnus of the Medical College of Virginia, having graduated in 1922.

Dr. and Mrs. H. Wallace Blanton,

Richmond, spent sometime in February, visiting in New York.

Members of Committee of the Gorgas Memorial Institute.

Drs. Paul V. Anderson, Robert C. Bryan, William T. Graham, Stuart McGuire, Garnett Nelson, Charles R. Robins, Beverley R. Tucker, Douglas Vanderhoof and Robert H. Wright are Richmond doctors who have been named on the Virginia Committee of the Gorgas Memorial Institute. Many men of prominence in the medical and business world are identified with this movement, which was started as a memorial to the late Gen. William

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C. Gorgas, and has as its aim a nation-wide campaign of health education.

Dr. Carroll H. Fowlkes,

Richmond, is on an ocean cruise of several weeks, during which time he will visit Panama, some points in South America, Cuba and Florida.

Dr. and Mrs. J. N. Barney,

Fredericksburg, Va., were called to Woodstock, Va., the middle of February on account of the illness of Mrs. Barney's mother.

The Virginia Public Health Association

Held its annual conference in Richmond February 23 and 24, with a large attendance of health workers from all over the State. Interesting papers were read by U. S. Public Health Service men, Dr. Watson Rankin, chief health officer of North Carolina, and by a number of Virginia health officers. Dr. L. J. Roper, Portsmouth, was elected president; Dr. W. R. Culbertson, Norton, and Miss Anne Gulley, of Loudoun County, vice-presidents; Dr. L. L. Williams, Richmond, secretary-treasurer, and Miss Blanche Webb, Richmond, assistant secretary-treasurer.

Dr. Austen Micklem,

Who has been located for some years at Schuyler, Va., announces that his post-office is now Alberene, Va.

Dr. John M. Bailey,

Richmond, who graduated from Medical College of Virginia last year, has located at Faraday, Va. Since last summer he has been one of the internes at Jefferson Hospital, Roanoke, Va.

Last Call for Federal Income Tax!

Time has arrived for the last reporting and the first payments on Federal income taxes for the year ending December 31, 1924. Single persons who had net incomes of $1,000 or more and married persons who had net incomes of $2,500 or more, during 1924, should get in touch at once with the collector of internal revenue for districts in which they live or have their principal place of business, if reports have not already been made. Reports are necessary even if exemptions relieve one from the payment of a tax.

Orthopedic Department at Halcyon Hospital.

Dr. H. S. Belt announces the organization of an orthopedic department at Halcyon Hospital, South Boston, Va. This will be in charge of Dr. John Blair Fitts and Dr. Thomas Wheeldon, of Richmond.

Dr. Wheeldon, who has been conducting the free orthopedic clinic, sponsored by the Kiwanis Club, at South Boston, will be at the Halcyon Hospital on the fourth Friday of each month to see private cases. The free clinic will be held on the following day.

Stringent Health Rule Enforced by Utah City.

According to *Venereal Disease Information*, the Salt Lake City authorities have been making a systematic effort to quarantine all men and women found under circumstances which give rise to a reasonable suspicion that they have a venereal disease. Under this rule, any situation which will warrant a reasonable inference that the persons are engaged in prostitution or promiscuity provides legal sanction for compelling an examination, and, if an infection is shown, to establish a quarantine and enforce treatment. Both men and women are subject to the working of the measure.

This rule was recently put into effect by the board of health of Salt Lake City acting in co-operation with the Utah State board of health.

Dr. George H. Thomas,

Recently of Staunton, Va., has accepted appointment as a medical examiner for the U. S. Veterans' Regional Office at Richmond, and is now located with the Bureau at Third and Grace Streets, this city.

The Sheltering Arms Hospital,

Richmond, Va., celebrated its thirty-sixth anniversary on February 13th, with appropriate exercises and a public reception at which light refreshments were served. This hospital is operated as a charitable organization, no charge being made patients for any purpose whatsoever. It is supported almost entirely by private subscriptions and the King's Daughters. During 1924, there were 1,073 patients who received 17,097 days of treatment. The cost per day for a patient was $1.92. Total expenditures for the year were $31,102.51.

Why Charge Patients Any Way?

A doctor visiting the office the other day showed us the following letter. It seemed so typical of problems which arise in every doctor's work, sooner or later, that we asked the privilege of publishing it, that the "other fellow" might have a laugh at the expense of

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his brother in misfortune. Names are withheld out of courtesy to those who have hard luck.

"Dear Dr.:

I thought I would write you in regard to the little I owe you on my little boy's operation. I am in a rite hard place, my family have been sick so much, my wife is in a bad condition. I sent her to Roanoke for Radium treatment. Dr. says she has to go back. She has about a dozen other troubles, so I don't see any chance of raising any money. If you will give me what I owe you I certainly will be olige to you for it. I have so many bills on me rite now till I have the blues. The amount I owe you is $26, so if you will marke it off I certainly will appreciate your kindness let me know at once.

yours truly."

And the doctor who received this letter did "even as you and I."

Dr. Beverley R. Tucker

Was unanimously re-elected president of the Westmoreland Club, Richmond, at its annual meeting in February.

Addition to be Made to Piedmont Sanatorium.

Contract has been awarded for the erection of an addition to Piedmont Sanatorium, at Burkeville, Va. The increased number of patients applying for treatment at this institution made the addition a necessity.

The American Association for the Study of Goiter,

At its annual meeting the latter part of January, elected Dr. Edward G. Blair, Kansas City, Mo., president, and Dr. Judson D. Moschelle, Indianapolis, secretary.

Work Started on Danville Hospital.

Ground was broken a month ago for the new Memorial Hospital to be built in Danville, Va. It is understood that the building will cost $250,000 and it is planned to have it finished within a year.

Accept Certificates of the National Board of Medical Examiners.

Dr. J. S. Rodman, Secretary of the National Board of Medical Examiners, announces that Michigan, Oklahoma, and Wyoming have been added to the list of states which will accept its certificate as qualifying physicians to practice medicine in those states. This makes a total of thirty-one states which now recognize the Board's certificate granted to candidates passing its uniform qualifying examinations, in addition to the territory of Porto Rico, the Military Reservation of the Canal Zone, and England and Scotland. The states are as follows: Alabama, Arizona, Colorado, Delaware, Georgia, Idaho, Illinois, Iowa, Kentucky, Maine, Massachusetts, Maryland, Michigan, Minnesota, Mississippi, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, Washington and Wyoming. In ten other states favorable legislation is now pending and it is expected that eventually the certificate granted by the Board will be good in all parts of the country.

Surgeon-General M. W. Ireland is president of the National Board, and Everett S. Elwood, of Philadelphia, is managing director.

Crippled Children in North Carolina.

North Carolina has made a census of its crippled children, finding 700 in the State, and is establishing local clinics to help those who live in rural districts, often far from hospitals and a long distance from good roads or railroads.

"Eugenic Marriage Law" in Wisconsin.

Wisconsin's so-called "Eugenic Marriage Law," passed in 1913, is believed to have had good results, according to a recent report by the Russell Sage Foundation. The law provides that every man must have a physisian's certificate showing him free from social diseases in order to receive a marriage license. The Russell Sage Foundation secured the opinions of Wisconsin physicians about the law and found that the majority favored it and that, in spite of the small fee allowed for the examination, most physicians conscientiously examined every applicant. The law has had marked educational value, it is reported.

Venereal Diseases Reported in 1924.

An increase in the number of cases of venereal disease reported in the United States in the year which ended June 30, 1924, over the number reported in the previous corresponding year is disclosed by the figures recently made public in the annual report of the Division of Venereal Diseases of the United States Public Health Service. The report indicates that the increase in the fiscal year 1924 amounts to 27,382 cases, or 7.2 per cent. A total of 363,063 cases of venereal diseases were reported to the various state boards of health from all sources. The increase shown in this report does not necessarily mean that venereal disease was any more prevalent in the United States last year than in the year before, but may be accounted for by the increased efficiency in detecting these maladies and by more conscien-

tious reporting of cases on the part of private physicians.

The menace of venereal disease is being fought by the U. S. Public Health Service and the various State boards of health acting in co-operation with municipal health officers. These governmental agencies are trying to impress upon parents, teachers, young people and others the need of wholesome sex education, of prompt medical attention and the necessity for the passage of modern health ordinances and legislation.

Annual Report of St. Elizabeth's Hospital, Richmond, Va.

The annual report of this hospital for its thirteenth year shows the following interesting facts for the year ending December 31, 1924.

In January, 1924 a training school for nurses was established and the hospital was incorporated. There were fifteen articles publised by members of the staff during 1924 and one book; the book is the second edition of Horsley's "Operative Surgery" published by C. V. Mosby Co., St. Louis.

The statistics show an increase in the number of operations and in the number of patients and a decrease in the mortality per cent as compared with the report of 1923.

There were 845 operations, 145 cystoscopies, and a total number of 964 patients. This includes only patients admitted to the hospital and not out-patients. Of the 964 patients, twenty-two died, making a general hospital mortality of 2.2 per cent. The operative mortality was 2.8 per cent (two patients dying within twenty-eight hours after admission); the medical mortality was .6 per cent (premature baby died three hours after delivery); the urological was 1.3 per cent, and there was no obstetrical mortality.

There were 1,021 anesthesias—491 local, 423 Ethylene-Oxygen, fifty-four Ether, forty Ethylene-Oxygen and Ether, thirteen Ethylene-Oxygen and local.

The following are some interesting statistical points picked at random from the full report: Twenty-two direct transfusions of blood; seventeen breast amputations (eight of these radical for malignancy) with no deaths; thirteen thyroidectomies (six with hyperthyroidism) with no deaths; nineteen fractures (one death from multiple fractures of skull); ten hysterectomies (two deaths); two Caesarean sections with no deaths; twenty-six inguinal herniotomies (one strangulated) with no deaths; six resections of the large bowel for malignancy (one death in an advanced diabetic); six pylorectomies with no deaths; six posterior gastro-enterostomies (two deaths); eight Horsley pyloroplasties with no deaths; twenty-eight cholecystectomies (one death from pulmonary embolism); thirteen surgical drainages of gall-bladder and bile ducts with no deaths.

Miss Elizabeth Buxton,

Daughter of Dr. and Mrs. J. T. Buxton, of Newport News, Va., has just returned to her home in that city, after completing the nurses' training course at the Peter Bent Brigham Hospital, Boston, Mass.

Children's Memorial Clinic.

This clinic has been operating in Richmond since early last August, under the auspices of all of the children's welfare agencies of Richmond—about twelve in number. Althoug yet in its infancy, this clinic is accomplishing excellent work. Dr. Basil Jones, of Richmond, has been connected with the clinic as medical director, since the opening day. Dr. George H. Preston, an alumnus of Johns Hopkins, has recently come to the Clinic from Gracewood Training School of Georgia, and has charge of the psychiatric work. Several assistants work in conjunction with these two doctors.

Dr. and Mrs. William R. Aylett,

Who have made their home in Newport News, Va., for a number of years, left early in February for Tappahannock, Va., and will live at their farm near that place, Dr. Aylett having retired from active practice. Prior to leaving Newport News, Dr. Aylett was tendered a farewell dinner to which were invited a number of his professional friends. Several of these, in "after-dinner" talks, spoke of what Dr. Aylett had done for Newport News as a citizen and a doctor, he having been responsible for the opening of the first hospital in that city, now known as Riverside Hospital. It was stated also that Dr. Aylett was the discoverer of the transmission of disease by the agency of the common house-fly, his discovery antedating that of Dr. Walter Reed by two years. It is worthy of note that Dr. Aylett published an article on this subject in the *Virginia Medical Semi-Monthly* in June, 1896, while connected with the staff of the Eastern State Hospital at Williamsburg, Va.

The National Committee for Mental Hygiene

Has added two new medical members to its

staff: Dr. George K. Pratt, as Assistant to the Medical Director; and Dr. Ralph P. Truitt, as Director of the Division on the Prevention of Delinquency, to succeed Dr. Victor V. Anderson, resigned.

Dr. Pratt was for the last three years Medical Director of the Massachusetts Society for Mental Hygiene. Dr. Truitt was formerly Medical Director of the Illinois Society for Mental Hygiene, and during 1924 directed the National Committee's Child Guidance Demonstration Clinic at Los Angeles, California.

Dr. Willard G. Rainey,

Who served an internship at St. Elizabeth's Hospital, this city, in 1923 and 1924, recently visited friends in this city. Dr. Rainey is now an instructor in pathology in the Medical Department of the University of Virginia.

The Tri-State Medical Association of the Carolinas and Virginia

Held its twenty-seventh annual session in Richmond, February 18 and 19, with an attendance of about 250. Dr. F. H. McLeod, of Florence, S. C., presided. Social features were eliminated and a splendid scientific meeting was had. On Wednesday evening, the 18th, addresses were given by the three invited guests, Dr. William S. Thayer, of Johns Hopkins University, Baltimore, Dr. John A. Hartwell, of the Cornell Medical Faculty, New York, and by Dr. Wade H. Brown, of the Rockefeller Institute, New York. For this occasion, the auditorium in which the meetings was held was crowded.

Fayetteville, N. C., was selected as the next place of meeting and the following officers were elected: President, Dr. W. Lowndes Peple, Richmond; vice-presidents, Drs. R. L. Payne, Norfolk, Va.; John T. Burrus, High Point, N. C.; and Robert P. Finney, Gaffney, S. C.; secretary-treasurer, Dr. James K. Hall (re-elected), Richmond, Va. New councilors are Drs. H. S. Belt, South Boston, Va.; William Allan, Charlotte, N. C.; and Z. G. Smith, Marion, S. C. The councilors holding over are Drs. F. M. Hodges, Richmond, Va.; D. A. Stanton, High Point, N. C.; W. R. Wallace, Chester, S. C.; William B. Porter, Roanoke, Va.; E. S. Boice, Rocky Mount, N. C.; and F. B. Johnson, Charleston, S. C.

Dr. Thomas M. Barber,

Who graduated from the Medical College of Virginia in 1917 and immediately entered the medical service of the World War, has located in Charleston, West Virginia, with offices in the Kanawha Banking and Trust Building. Dr. Barber has spent several years working in hospitals of Boston, Mass.

Dr. H. M. Miles,

Of Norton, Va., is spending a few weeks in New York City, where he is doing post-graduate work in eye, ear, nose and throat work at the New York Polyclinic. He will return to Norton upon completion of the course.

Dr. E. H. Lewis,

Of Gordonsville, Va., is spending sometime in Alexandria, Va.

Shrine Hospitals Open New Unit.

On February 21st, the eleventh of the Shrine Hospitals for crippled children with a capacity of fifty beds, was opened at Springfield, Mass. The Shriners' hospitals have grown in three years from fifty beds in one hospital to 500 in the chain of hospitals, and others are yet to be built. No charge is made in any of these hospitals for hospital care or operations, and they are open to little cripples whose parents are unable to pay, without restriction as to color, race or creed. Shriners support these hospitals by an annual assesment of $2 a year per member. These hospitals are now in operation in St. Louis, San Francisco, Portland Ore., Minneapolis-St. Paul, Shreveport, Montreal, Springfield, Mass., Winnipeg, Salt Lake City, Spokane, and Honolulu.

Dr. Thomas J. Kagey,

Newport News, Va., suffered a stroke of apoplexy, February 25, while playing golf, and was reported as being in a critical condition, at the time we went to press.

Dr. W. James Marquis,

Who served an internship at St. Elizabeth's Hospital, Richmond, in 1922-23, recently visited Richmond. Since completing his internship here, Dr. Marquis has been a Fellow in Radiology at the Mayo Clinic.

The American Psychiatric Association

Will hold its eighty-first annual session in Richmond, Va., May 12-15, with headquarters at Jefferson Hotel. President of the Association is Dr. William A. White, of St. Elizabeth's Hospital, Washingtonn, D. C., and the secretary is Dr. Earl D. Bond, of 4401 Market Street, Philadelphia, Pa. Dr. James K. Hall, of Westbrook Sanatorium, Richmond, is chairman of the local committee of arrangements. One day will be spent in visiting Williamsburg,

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Jamestown, Yorktown and the points of interest in that section. As a matter of note, it may be stated that the Eastern State Hospital, at Williamsburg, is the oldest State hospital for insane in North America.

The William Holland Wilmer Foundation.

Dr. Goodnow, president of Johns Hopkins University, announces that contributions totaling $1,500,000 have been secured to meet the pledge of the Rockefeller Foundation for an equal amount, for the establishment of a teaching hospital and research institute for diseases of the eye at Johns Hopkins. This will be under direction of Dr. William H. Wilmer, of Washington, D. C., whose name it bears. The hospital will have sixty beds, two-thirds of which will be for patients unable to pay all or part of the cost of treatment.

Dr. Wilmer has been appointed professor of ophthalmology in the medical school at Johns Hopkins. It is hoped that he will be able to take up his work in Baltimore next September.

Sight-Saving Classes Necessary in Schools.

In an address given last month before the National Education Association, Lewis H. Carris, managing director of the National Committee for the Prevention of Blindness, urged the necessity of sight-saving classes in public schools. He stated that there were at least 50,000 children with such seriously defective vision that they were unable to keep up with the work of normally sighted children. According to Mr. Carris, approximately 12½ per cent of the school children of the United States have defective vision to a degree which constitutes an educational handicap. In view of this, he suggests that vision tests should be made in connection with physical examinations of school children and that an adequate state law should be made to promote eye examinations in public schools.

U. S. Army Almanac.

A copy of this almanac, sent our office, is attractively gotten up by the Recruiting Publicity Bureau of the U. S. Army, at Governor's Island, N. Y. In addition to the regular almanac information, it gives many interesting facts concerning the different branches of the Army and lists over five hundred historical events concerning the U. S. Army.

Virginia War History in Newspaper Clippings

Has just been published in a limited edition by the Virginia War History Commission, of which Mr. Arthur Kyle Davis, of Petersburg, is chairman. As "the newspapers in Virginia, as in other States, put on khaki with the doughboys," this volume may be expected to cover this history as no other medium can. This presentation gives a history of Virginia and its people in the World War which should be interesting and accurate as to detail, and withal, replete with the patriotism which imbued us all.

Orders for this volume should be sent at once to the Publication Department of the Commission. Price of the volume bound in cloth is $2.00 and in paper $1.50.

Dr. William E. Warren,

Williamston, N. C., has been re-elected county physician of Martin County, N. C.

Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for the following positions, applications to be rated as received until June 30, 1925:

Junior medical officer, assistant medical officer, associate medical officer, medical officer, senior medical officer; and

Graduate nurse, and graduate nurse (visiting duty).

Dr. E. T. Trice,

Richmond, Va., was called to Roanoke, Va., the middle of February, on account of the illness and death of his mother.

Mothers' Pensions in New York.

Mothers can give children good care more economically than can institutions. This is proved by figures in the last annual report of the New York City Board of Child Welfare. In 1923 this board cared for approximately 23,000 children and 8,500 widows in their own homes at a cost of $4,517,106. As against this, the city paid $4,032,700 to provide for 13,690 children in institutions. In other words, it cost New York $28.40 a month to care for a child in an institution and only a little over $15 to care for a child in its own mother's home.

Child Cripples.

There are about 264,000 crippled children in the United States, according to an estimate in the recently published "The Care, Cure, and Education of the Crippled Child," by the International Society for Crippled Children.

Infantile paralysis ranks first in the list of causes of crippling conditions in children, "sur-

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gical" tuberculosis second, congenital deformities third, and rachitic deformities fourth.

Wanted.

Doctor at Wingina, Nelson County, Virginia. On Chesapeake and Ohio Railway. Address answers to "E. J.", care VIRGINIA MEDICAL MONTHLY. (Adv.)

Obituary

Dr. Julian A. Norfleet,

After an illness of several months, died at his home in Norfolk, Va., February 9. He was sixty years of age and had taken his diploma in medicine from the Medical College of Virginia in 1886. For thirty years, Dr. Norfleet had been a successful and much loved physician in his section and was active in the public life of his community and in the work of the Norfolk County Medical Society, of which he had long been a member. He had been a member of the Medical Society of Virginia for a number of years.

The Norfolk County Medical Society held a meeting following his death and adopted the following resolutions:

Upon the death of Dr. J. A. Norfleet, of Norfolk, the Norfolk County Medical Society, in session assembled, adopted the following resolutions:

RESOLVED, That we deeply regret the death of a member with whom we have been long associated;

That in the severance of these relations he will be signally missed by us.

That we record with pride the professional standards to which he attained, and the evidences of character which in his life have been so convincing and so conclusive.

To his family, his friends, and to that wide circle of people who looked to him for professional advice and guidance, we extend our sympathy and sorrow.

WALTER B. MARTIN,
W. G. ASHBURN,
FRANK HANCOCK,
Committee.

Dr. Howard Fletcher,

Prominent physician of Northern Virginia, died at his home in Warrenton, Va., February 25. Dr. Fletcher was born in Warrenton forty-nine years ago and received his academic education at Randolph Macon College. After this he studied medicine at Johns Hopkins University, Baltimore, from which he graduated in 1900. He had been a member of the Medical Society of Virginia since 1909, was a Mason, and a member of a number of fraternal and medical organizations. At the time of his death Dr. Fletcher was president of the Medical Society of Northern Virginia, Maryland and the District of Columbia.

Dr. John F. Ragland, Jr.,

Of Petersburg, Va., died February 10, in Richmond, following a heart attack. Dr. Ragland was a native of Richmond and studied medicine at the Medical College of Virginia, from which he graduated in 1899. He joined the Medical Society of Virginia in 1904 and had since been a member. He practiced for a number of years in Chesterfield County, Virginia, and for a time represented that county in the General Assembly. During the World War, he served as a lieutenant in the Navy and was stationed for a large part of the time at the Marine Hospital in Norfolk. Following the war, Dr. Ragland took a post-graduate course in diseases of the eye, ear and throat, upon the completion of which he located in Petersburg, where he had practiced for about five years. He is survived by his wife, a daughter and a large family connection.

Dr. George Archer Hankins,

For a long time physician to the College of William and Mary, died at his home in Williamsburg, Va., February 27, aged seventy-nine years. Dr. Hankins studied medicine at the Medical College of Virginia, from which he graduated in 1873, and was a member of the Medical Society of Virginia until his retirement from active practice several years ago. He was a veteran of the war between the States. Dr. Hankins was for fifty years prominently identified with the development of Williamsburg and the surrounding country. He is survived by his wife and two children.

Dr. Charles James Terrell,

Of Hewlett, Va., died at the home of a daughter in Chatham, Va., February 10. He was one of the oldest members of the medical profession in this State, being about ninety years of age. He graduated from Jefferson Medical College, Philadelphia, in 1856, and, from then until his retirement from active work, with the exception of the time of the war between the States, practiced in Hanover County. At the beginning of this war, Dr. Terrell assisted in organizing the Ashland Artillery, with which he served as lieutenant for two years, when he became a surgeon with the Confederate Army until the end of the war. He was an active member of the United Confederate Veterans, being at one time surgeon-general of this order in Virginia. Dr. Terrell is survived by several children, one of them Dr. E. A. Terrell, of Frederick's Hall, Va., and by a number of grandchildren.

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